User's Guide

LSIZE Wireless™

Wireless Measurement Collection & Analysis

MICRORIDGE

Measurement Collection & Analysis
Technology For Today & Tomorrow!
www.microridge.com

LSIZE Wireless v11

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1 How to Get Started

As with any new computer and measurement acquisition system you must devote some time to become familiar with the operation of the new hardware and software, LSIZE Wireless will be easy to use once you understand the components within the system. The steps outlined below are a guide to the things you should do to get LSIZE Wireless up and running.

- Read this User's Guide cover to cover.
- LSIZE Mobile can be set up with LSIZE on the PC or LSIZE Mobile Lite Setup.
- The LSIZE Mobile software in the Handheld will only work with the LSIZE software on your PC or LSIZE Mobile Lite Setup if all applications are of the same version. For example, LSIZE Mobile v11 on the Handheld will only work with LSIZE v11 on your PC. The software versions are displayed in the About dialogs in each of the applications. If you have not installed the proper versions on your PC, you should do that now.
- Set up bin specs for the Handheld in the LSIZE software on your PC or LSIZE Mobile Lite Setup.
- Connect the Docking Station to your PC. Refer to the Docking Station section in the LSIZE Handheld chapter for more details.
- Insert the Handheld into the Docking Station and start the LSIZE Mobile application. Refer to the Starting LSIZE Mobile section in the LSIZE Handheld chapter for more details.
- Select the Data Transfer button in LSIZE Mobile.
- The follow discussion refers to the use on LSIZE on the PC for specs setup and transfer. The process of using LSIZE Mobile Lite Setup for the specs configuration is very similar.
- In the LSIZE software on your PC, select the menu item *Wireless/Communications setup*. Select the serial port that the Docking Station is connected to. If you have several serial ports you may have to use a trial and error approach with the next few items in this list.
- Start the ComTestSerial communications test program by selecting the menu item *Wireless\Communications test*.
- Press the Send Info button on LSIZE Mobile. The Send Info button is available in the Data Transfer display.
- If you get the copyright and other information to display in ComTestSerial, proceed to the next item. If nothing is displayed in ComTestSerial, try selecting a different serial port in ComTestSerial and try the previous step again.
- You now have established serial communications and are ready to transfer the bins specs to the Handheld.
- Close the ComTestSerial communications test program. You cannot send specs or read measurements from the Handheld if ComTestSerial is open.
- Be sure the LSIZE Mobile is in the *Data Transfer* function.
- In LSIZE on the PC, select the menu item *Wireless/Send bin specs to Handheld*.
- Send the specs to the Handheld. You will get messages on the PC and the Handheld if your transfer was successful

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- Verify that your gage is associated with the Handheld. The Mobile Module(s) associated with the Handheld are checked in the *Associate & Test Module* function. If your gage is not associated with the Handheld, you must go through the association procedure before you can take measurements. Refer to the Associate with a Handheld section in the Mobile Module chapter for more details.
- You are now ready to take some test measurements. We recommend you take test measurements in your office until you are comfortable with the operation of LSIZE Wireless.
- Select the *Measure Board* function on LSIZE Mobile and take some measurements.
- Select another bin and take some more measurements.
- Retake a measurement, enter a missing measurement, view the reports and explore the LSIZE Mobile application.
- Download your collected test measurements into the LSIZE software on your PC. You should later delete these test boards from your database.
- Download the measurements again. What does LSIZE tell you?
- How do you clear the measurements in the Handheld? The answer is "You normally do not clear Handheld measurements". You should let LSIZE Mobile manage this clearing process for you. When measurements are downloaded to the LSIZE software on your PC, LSIZE Mobile will delete boards older than the specified number of days. The number of days to retain boards is part of the bin specs setup in the LSIZE software on your PC.
- Read this User's Guide cover to cover.
- Congratulations, you have completed the first steps in becoming an "LSIZE Wireless Expert".

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2 Introduction

LSIZE Wireless is a wireless measurement collection and analysis tool designed for use in forest products manufacturing facilities such as sawmills, veneer mills, panel plants, etc. LSIZE Wireless allows you to collect and store measurement information from multiple machine centers and identify the cutting location and target size within the machine center. Each machine center, cutting location and target size that is being monitored is stored in a separate measurement bin. LSIZE Wireless allows you to specify up to 300 separate measurement bins for each database on LSIZE Wireless. You can have up to 10 different databases on LSIZE Wireless.

The wireless technology that is used by LSIZE Wireless was developed by MicroRidge Systems and has been shipping to general manufacturing facilities since October 2006. LSIZE Wireless is the only wireless measurement collection system available that has been designed specifically for forest products manufacturing facilities.

LSIZE Handheld with Mobile Module on Caliper

LSIZE Wireless must be used in conjunction with the LSIZE software on your PC. The LSIZE software on your PC is used to configure the measurement bins for LSIZE Wireless and to receive the measurements collected by LSIZE Wireless. The bin specifications and measurements are transferred to and from LSIZE Wireless when the Handheld is placed into the Docking Station that is included with LSIZE Wireless.

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2.1 LSIZE Handheld

The Handheld is an industrial unit manufactured by Psion (pronounced sy on) and is referred to by Psion as the WORKABOUT PRO. The current model is the WORKABOUT PRO3.

Psion is a well established company that has been manufacturing rugged portable computers for many years. In case you are wondering where the word Psion comes from, it stands for "Potter Scientific Instruments or Nothing".

Some of the key features of the Handheld are listed below:

- Windows Mobile 6.1 Classic Operating System.
- 3.7" (diagonal) color touch screen with 480 x 640 pixel resolution.
- Withstands 6 foot drop to polished concrete while powered on.
- Rain/dust IP65 rating.
- 4,400 mAh super high capacity battery pack.
- 624 MHz 32 bit RISC processor.
- 1,000 MB flash memory.
- 256 MB RAM memory.

For those of you familiar with the MicroPak (manufactured by MicroRidge from 1990 until March 2009), the MicroPak ran at 1.6 MHz, had 64K of flash memory and 32K of RAM memory. If you could purchase a MicroPak today, it would cost you more than the LSIZE Handheld. The MicroPak was the portable measurement collection technology available to the forest products industry prior to LSIZE Wireless.

2.2 LSIZE Mobile Software on Handheld

The application on the Handheld was developed by MicroRidge Systems and is called LSIZE Mobile. The features contained in the LSIZE Mobile software are the result of user request and over 25 years of experience in developing measurement collection and analysis tools for the forest products industry.

Key features of the LSIZE Mobile software include:

- Supports up 10 database.
- Configure up to 300 bins/database for monitoring machine centers, cutting locations and product codes.
- Configure each bin with product specs and number of measurements per piece (up to 16 measurements/piece).
- Shape charts automatically build as measurements are being taken.
- Enter missing measurements if you are unable to get a measurement at the desired measurement location.
- Enter measurements via wireless connection and keyboard.
- Add a note to items measured (notes are selected from a predefined list).

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- Retake measurements.
- View statistical calculations.
- View histograms.
- View XBar & R (Average & Range) control charts.
- Retain measurements on Handheld to provided additional information for the calculations and charts.
- Transfer measurements to the LSIZE software on your PC for additional analysis.
- Smart measurement deletion from the Handheld. LSIZE Mobile will automatically remove measurements older than the specified retention period.
- Automatic date and time update on your Handheld. Since your PC is the source for the current date and time, you must be sure that your PC has the proper date and time.
- Help screens on many of the available displays.

2.3 LSIZE Wireless Components

The wireless portion of LSIZE Wireless was developed by MicroRidge Systems. The wireless hardware components consist of the Mobile Base board installed in the Handheld and the Mobile Module attached to your gage. When the Handheld receives a measurement from the Mobile Module, a message is sent back to the Mobile Module that the Handheld has received the measurement. This transmission back to the Mobile Module provides notification to the user that the measurement data was successfully received by the Handheld.

The Mobile Module is powered by a commonly available photo lithium battery. When the Mobile Module is used with Mitutoyo gages, the Mobile Module battery life is measured in years. The gage cable that connects the Mobile Module to your gage is field replaceable by the user. It is recommended that you always have a spare gage cable available.

LSIZE Wireless is designed so that you can use multiple Handhelds in close proximity to each other. When you set up the association between a Mobile Module and a Handheld, that Mobile Module will only communicate with the Handheld that it has been associated with. You do not have to be concerned about data being sent to other Handheld units.

The range of the Mobile Module to the Handheld is up to 100 feet. When you are collecting measurements, you will be putting the Handheld in a location where it can be seen as you are taking the measurements. Typically this distance would be less than 25 feet. Remember, only a single gage should be used to communicate with a Handheld. If you want to collect measurements with 2 gages at the same time, you must have 2 Handhelds.

A complete LSIZE Wireless package consists of the components listed below. If you are using multiple Handhelds to collect measurements, you normally only need a single Docking Station to transfer data to and from the Handheld.

- Handheld with Mobile Base board and LSIZE Mobile application software
- Handheld nylon pouch with belt swivel (optional item)

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- Docking Station package
  - Docking station
  - AC Adapter with interchangeable plugs
  - USB/RS-232 Adapter with Null Modem Adapter
  - 3' USB Extension cable
  - 6' 9-pin (M/F) serial extension cable
  - 6' Serial to USB interface cable with CD
  - USB Sync cable with for use with ActiveSync (Windows XP) or Windows Mobile Device Center (Windows 7)
- Mobile Module with gage cable
- Adhesive pads for attaching Mobile Module to gage
- Mobile Module labels for displaying Module ID
- Screwdriver
- User's Guide with application CD

An appropriate gage is also required with the LSIZE Wireless. If you already have a Mitutoyo caliper or micrometer with SPC output, you can use that gage. You must be sure you order the proper gage cable for the gage you intend to use with the LSIZE Wireless. Mitutoyo gages can be ordered directly from MicroRidge Systems.

2.4 Spare Parts & Accessories

There are several spare parts and accessories available for LSIZE wireless. All of these parts are available directly from MicroRidge Systems. Please contact us for current pricing.

Gage Cables

We recommend you always keep at least one spare gage cable in stock. When ordering spare cables, be sure you have the brand and model number of your gage. For Mitutoyo gages, we need the code number rather than the model number.

Screen Protectors

These are clear plastic overlays for the Handheld touch screen. These screen protectors are optional; however, we strongly recommend that you use a screen protector on all of your Handhelds. The screen protectors come in packages of 4.

Stylus

A replacement stylus is available for the Handheld. You should not use pens, pencils or pointed metal objects as a stylus. Most of the displays within LSIZE Mobile can be navigated by using the keyboard or by using a finger on the touch screen. There are a few instances where it will be easier to navigate by using a stylus.

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Mobile Module Battery

At some point you will need to replace the battery in the Mobile Module. The life of the Mobile Module battery should be in excess of one year. The battery used in the Mobile Module is a CR2 photo lithium battery. This battery is widely available and can be obtained directly from MicroRidge or in the retail market from places such as Walmart, Safeway, etc.

Handheld Battery Pack

The battery pack in the Handheld must be purchased from MicroRidge Systems. When you notice that battery capacity tends to fall faster than when the battery was new, you should order a new battery. You can monitor the battery capacity on the main LSIZE Mobile screen. Refer to the Battery section for more information.

2.5 Country Certification & Approvals

LSIZE Wireless has been approved for use in North America (Canada, United States and Mexico), South America, Australia, New Zealand and European Union countries. MicroRidge Systems has not obtained approval for operation in other parts of the world. If your application for this Wireless System is for other regions, contact us about possible approvals for your area.

The radios used in the LSIZE Wireless operate in the Industrial, Scientific & Medical (ISM) frequency band at 2.4 GHz. This frequency is typically higher than the frequency used by cell phones.

The Mobile Module and Handheld can be used in close proximity to an individual. The approval allows for the Mobile Module to be closer than 8.7 inches (22 cm) to an individual.

The following statement is included in this manual for the Mobile Module. A similar statement is already displayed on a label on the back of the Handheld.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

The wireless approvals for the LSIZE Mobile Module is covered under 1 or more of the following:

- FCC ID: U6TZIGBIT-A2
- FCC ID: OUR-XBEE
- IC: 7036A-ZIGBITA2
- IC: 4214A-XBEE
- N24679
- CE

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2.6 Setup & Printing Options

LSIZE Wireless Setup

LSIZE Wireless must be set up before you can begin collecting measurement data. There are 2 set up options available.

- LSIZE for the PC
- LSIZE Mobile Lite Setup

The following table summarizes the the differences between the 2 setup methods.

Feature	LSIZE for PC	Lite Setup
PC-based software	x	x
Set up bin specs on PC and download to Handheld	x	x
Long-term analysis	x	
Quick Print utility	x	x
Detailed analysis & charts	x	
Histogram & control charts	x	x
Combine multiple machine centers in analysis	x	
Download measurements to PC for long-term data storage	x	
Use for incoming product inspection	x	x
Use for spot checks in the mill	x	x
Export data to Excel	x	x
1-line summary report	x	x
Select individual boards to be included in reports	x	

If you use LSIZE Mobile Lite Setup to configure LSIZE Wireless, you cannot transfer the collected measurement to LSIZE on the PC for long term storage and analysis

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Printing LSIZE Wireless Reports

LSIZE Mobile Quick Print can be used to print measurements, statistics and charts base in the data in LSIZE Wireless. You can use the Quick Print utility regardless of the method to configure LSIZE Wireless.

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3 LSIZE for the PC

If you configure LSIZE Wireless with LSIZE for the PC you will be able to transfer the collected measurements to LSIZE for long term data storage and analysis. You can also generate reports from LSIZE and LSIZE Mobile Quick Print. Refer to the LSIZE for PC User's Guide for additional information.

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4 LSIZE Mobile Lite Setup

If you configure LSIZE Wireless with LSIZE Mobile Lite Setup you will not be able to transfer the collected measurements to LSIZE for the PC. You will be able to generate reports with LSIZE Mobile Quick Print.

The operation of LSIZE Mobile Lite Setup is very straight forward. The program consists of 4 tabs were information is selected and entered.

- Handheld Transfer
- Machine Setup
- Product Specs
- Handheld Bin

The Handheld must be in the docking station and connected to the PC via the serial cable in order to transfer information to the Handheld. Be sure to select the serial port (Setup/Serial Port menu) before you try to communicate with the Handheld.

All of the bin specs files need to be save to a single folder location. You can change the folder location with the Setup/Default Setup File Folder menu item.

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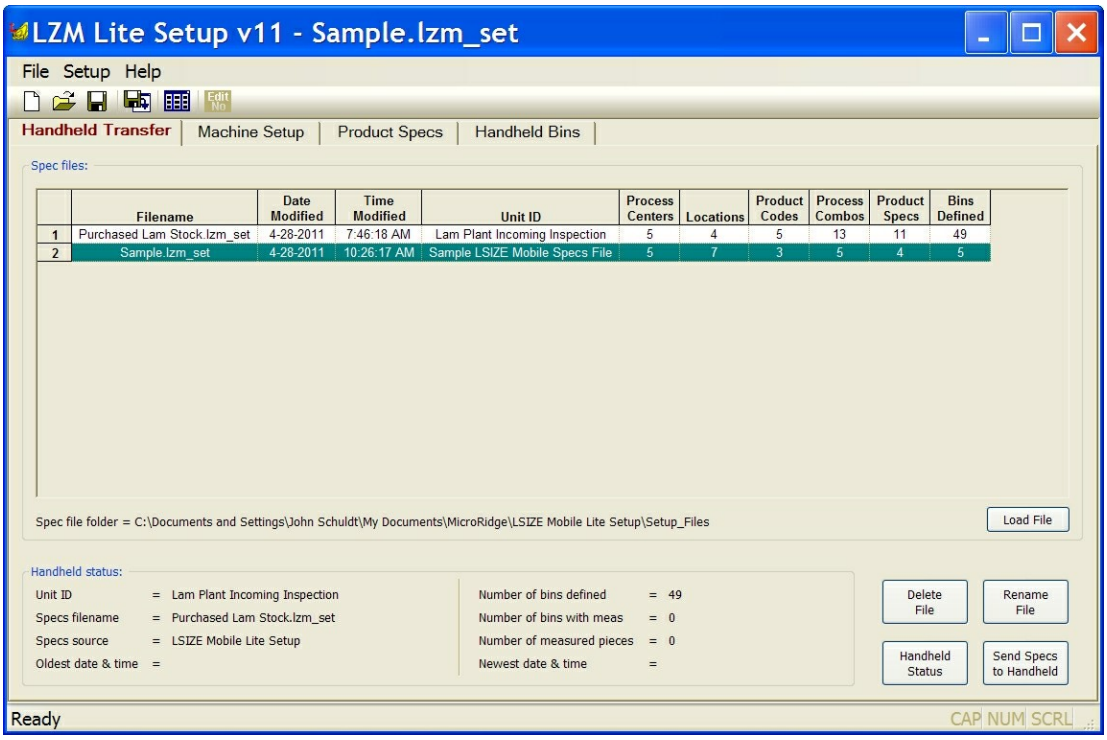
4.1 Handheld Transfer


LZM Lite Setup v11 - Sample.lzm_set
File Setup Help
Handheld Transfer
Machine Setup
Product Specs
Handheld Bins
Spec files:
Filename
Date Modified
Time Modified
Unit ID
Process Centers
Locations
Product Codes
Process Combos
Product Specs
Bins Defined
1 Purchased Lam Stock.lzm_set 4-28-2011 7:46:18 AM Lam Plant Incoming Inspection 5 4 5 13 11 49
2 Sample.lzm_set 4-28-2011 10:26:17 AM Sample LSIZE Mobile Specs File 5 7 3 5 4 5
Spec file folder = C:\Documents and Settings\John Schuldt\My Documents\MicroRidge\LSIZE Mobile Lite Setup\Setup_Files
Load File
Handheld status:
Unit ID = Lam Plant Incoming Inspection
Specs filename = Purchased Lam Stock.lzm_set
Specs source = LSIZE Mobile Lite Setup
Oldest date & time =
Number of bins defined = 49
Number of bins with meas = 0
Number of measured pieces = 0
Newest date & time =
Delete File
Rename File
Handheld Status
Send Specs to Handheld
Ready
CAP NUM SCRL

You can have up to 15 different spec files for you Handhelds. However, only the Handheld can only contain a single spec file at any one time. Select the spec file you want to edit or transfer to the Handheld. You can select the file by double-clicking the file or pressing the Load File button.

Press the Handheld Status button to see what information is currently in the Handheld. Press the Send Specs to Handheld button to send the selected specs file to the Handheld.

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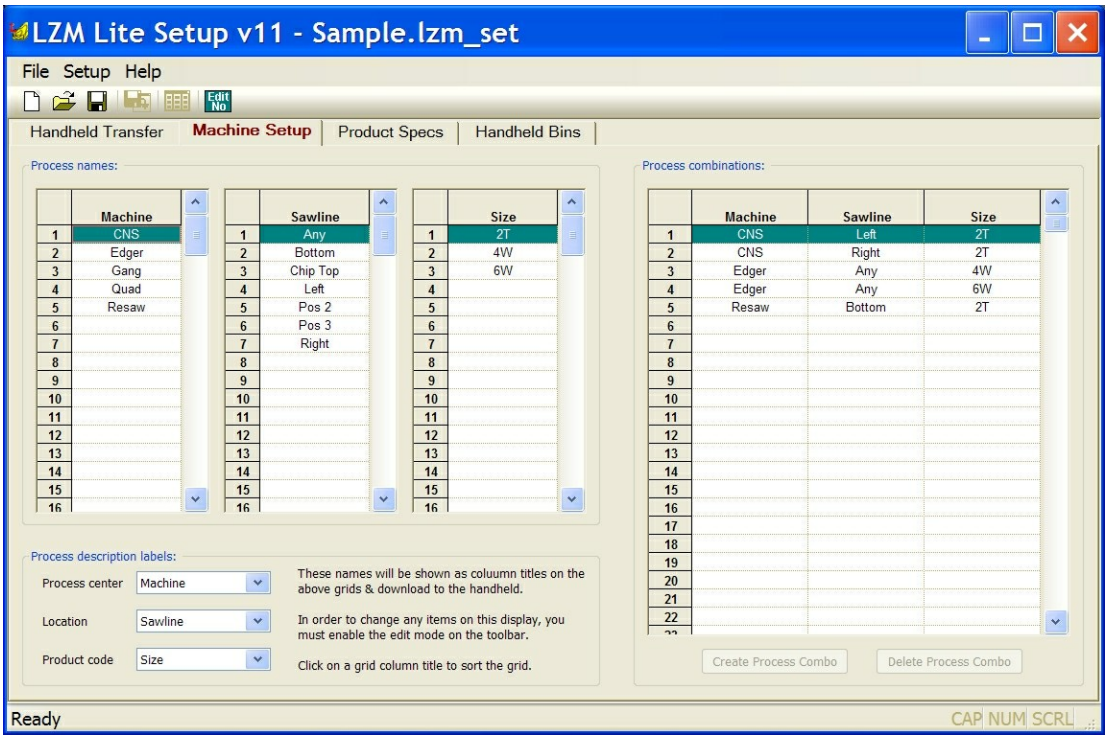
4.2 Machine Setup



In order to edit any of the items on this tab, you must enable the edit mode with the Edit toolbar button. You need to enter items in the Machine, Sawline and Size columns that you will be monitoring. To create a process combination, select an item in each of these 3 columns and press the Create Process Combo button. If you rename an item in one of the first 3 columns (change CNS to Twin), every place the original item name appeared, will be replaced by the new item name.

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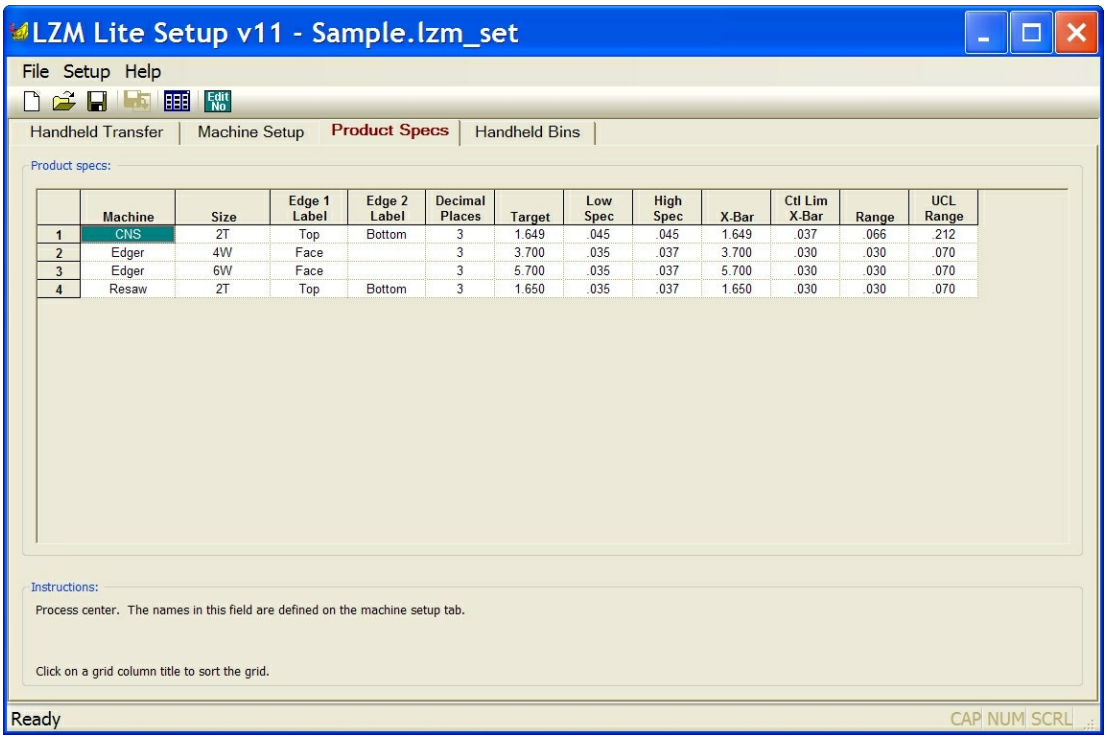
4.3 Product specs


LZM Lite Setup v11 - Sample.lzm_set
File Setup Help
Edit No
Handheld Transfer
Machine Setup
Product Specs
Handheld Bins
Product specs:
Machine Size Edge 1 Label Edge 2 Label Decimal Places Target Low Spec High Spec X-Bar Ctl Lim X-Bar Range UCL Range
1 CNS 2T Top Bottom 3 1.649 .045 .045 1.649 .037 .066 .212
2 Edger 4W Face 3 3.700 .035 .037 3.700 .030 .030 .070
3 Edger 6W Face 3 5.700 .035 .037 5.700 .030 .030 .070
4 Resaw 2T Top Bottom 3 1.650 .035 .037 1.650 .030 .030 .070
Instructions:
Process center. The names in this field are defined on the machine setup tab.
Click on a grid column title to sort the grid.
Ready
CAP NUM SCRL

In order to edit any of the items on this tab, you must enable the edit mode with the Edit toolbar button. The Machine and Size fields for each Process Combination you create are automatically added to this tab. If you have a CNS : Left : 2T and CNS : Right : 2T process combination, the row added to this tab will be CNS : 2T. You then need to add information to other fields as required. You do not have to enter product spec information in order to use LSIZE Mobile. However, it is recommended that you fill in the information for all of the fields. There are instructions shown at the bottom of the display for each cell in the grid.

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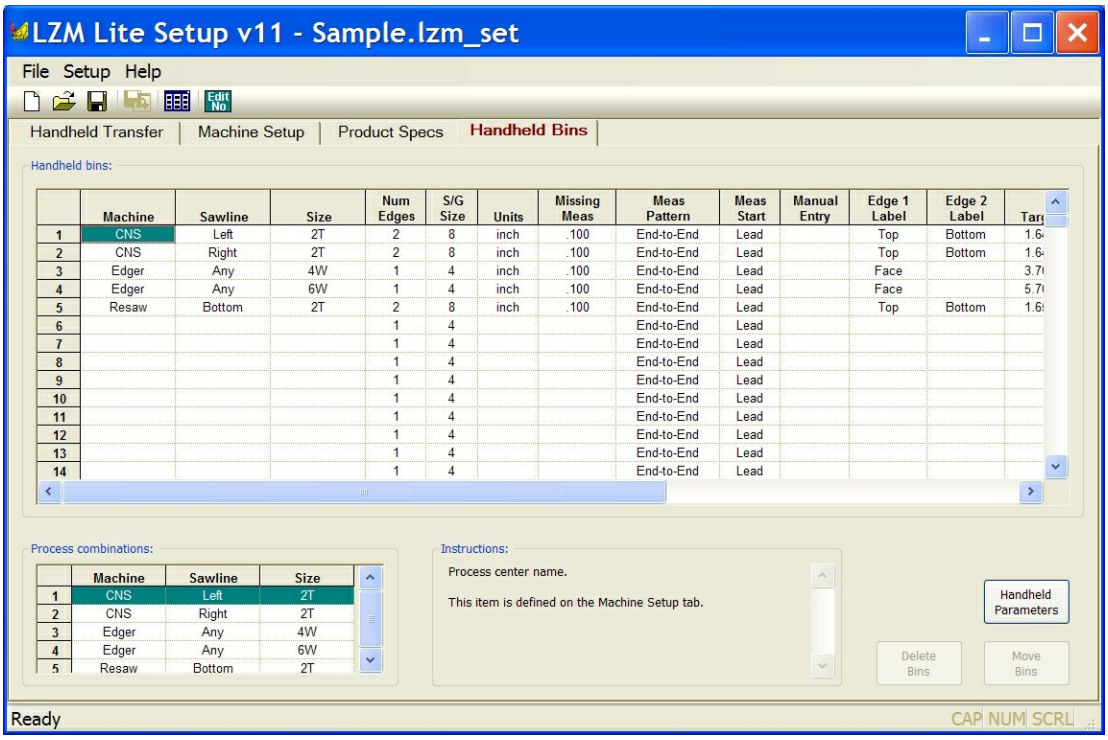
4.4 Handheld Bins


LZM Lite Setup v11 - Sample.lzm_set
File Setup Help
Edit No
Handheld Transfer
Machine Setup
Product Specs
Handheld Bins
Handheld bins:
Machine Sawline Size Num Edges S/G Size Units Missing Meas Meas Pattern Meas Start Manual Entry Edge 1 Label Edge 2 Label
1 CNS Left 2T 2 8 inch .100 End-to-End Lead Top Bottom
2 CNS Right 2T 2 8 inch .100 End-to-End Lead Top Bottom
3 Edger Any 4W 1 4 inch .100 End-to-End Lead Face
4 Edger Any 6W 1 4 inch .100 End-to-End Lead Face
5 Resaw Bottom 2T 2 8 inch .100 End-to-End Lead Top Bottom
Process combinations:
Machine Sawline Size
1 CNS Left 2T
2 CNS Right 2T
3 Edger Any 4W
4 Edger Any 6W
5 Resaw Bottom 2T
Instructions:
Process center name.
This item is defined on the Machine Setup tab.
Handheld Parameters
Delete Bins
Move Bins
Ready
CAP NUM SCRL

In order to edit any of the items on this tab, you must enable the edit mode with the Edit toolbar button. You build the bin specs to be sent to the Handheld from this tab. To move a Process Combination from the lower grid to the upper grid you can drag and drop the item or double-click the item. If you double-click the item, the cursor in the upper grid must be in one of the first 3 columns. Any changes you make in the Machine Setup or Product Specs tabs are automatically reflected on this tab.

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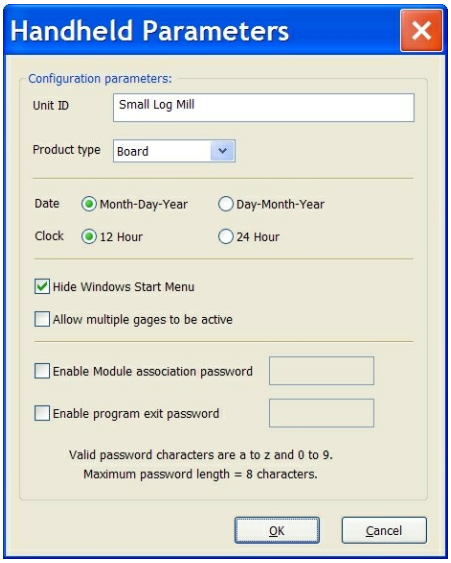
Handheld Parameters



Be sure to review the Handheld Parameters. The first 2 items (Unit ID and Product type) are labels that are displayed on the Handheld.

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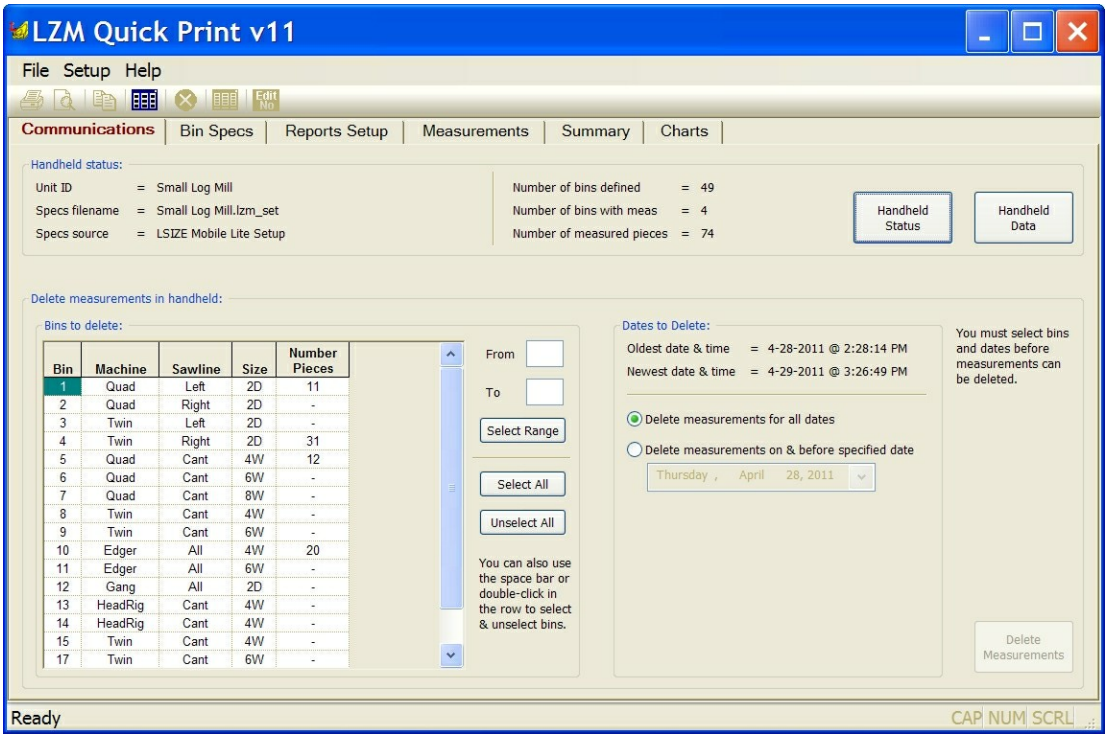
5 LSIZE Mobile Quick Print

The LSIZE Mobile Quick allows you to generate printed reports based on the measurement data in the Handheld. The Quick Print utility reads the spec and measurement data from the Handheld and allows you to select what you want printed to a printer that is accessible your your PC. To use the Quick Print utility put the Handheld into the docking station and select the Data Transfer item on the main Handheld screen. If possible you should print the information to a color printer. The out-of-spec and out-of-control standout much better on a color printer rather than a black & white printer.

5.1 Communications


LZM Quick Print v11
File Setup Help
Communications
Bin Specs
Reports Setup
Measurements
Summary
Charts
Handheld status:
Unit ID = Small Log Mill
Specs filename = Small Log Mill.lzm_set
Specs source = LSIZE Mobile Lite Setup
Number of bins defined = 49
Number of bins with meas = 4
Number of measured pieces = 74
Handheld Status
Handheld Data
Delete measurements in handheld:
Bins to delete:
Bin Machine Sawline Size Number Pieces
1 Quad Left 2D 11
2 Quad Right 2D -
3 Twin Left 2D -
4 Twin Right 2D 31
5 Quad Cant 4W 12
6 Quad Cant 6W -
7 Quad Cant 8W -
8 Twin Cant 4W -
9 Twin Cant 6W -
10 Edger All 4W 20
11 Edger All 6W -
12 Gang All 2D -
13 HeadRig Cant 4W -
14 HeadRig Cant 4W -
15 Twin Cant 4W -
17 Twin Cant 6W -
From
To
Select Range
Select All
Unselect All
You can also use the space bar or double-click in the row to select & unselect bins.
Dates to Delete:
Oldest date & time = 4-28-2011 @ 2:28:14 PM
Newest date & time = 4-29-2011 @ 3:26:49 PM
Delete measurements for all dates
Delete measurements on & before specified date
Thursday , April 28, 2011
You must select bins and dates before measurements can be deleted.
Delete Measurements
Ready
CAP NUM SCRL

The Communications tab is used to retrieve the Handheld status and data information. If you click the Handheld Status button, you get the data for this tab and the Bin specs tab. If you click the Handheld Data button, you get the status information and all of the measurement data in the Handheld.

The Communications tab is also used to delete measurement in the Handheld. You can select the bins that you want to delete measurements from and you can also specify the range of dates to be deleted.

If you are also downloading you measurements to LSIZE on the PC, you should not manually delete any measurement from the Handheld. LSIZE on the PC will automatically manage the measurement deletion process for you.

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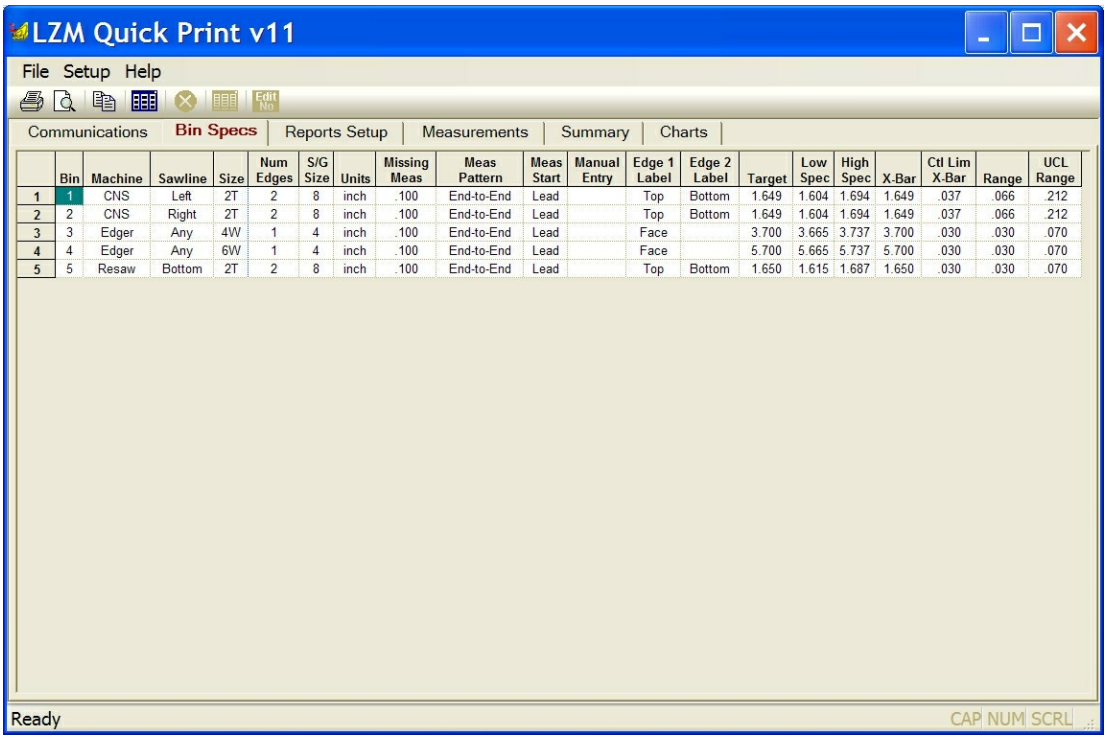
5.2 Bin Specs



	Bin	Machine	Sawline	Size	Num Edges	S/G Size	Units	Missing Meas	Meas Pattern	Meas Start	Manual Entry	Edge 1 Label	Edge 2 Label	Target	Low Spec	High Spec	X-Bar	Ctl Lim X-Bar	Range	UCL Range
1	1	CNS	Left	2T	2	8	inch	.100	End-to-End	Lead		Top	Bottom	1.649	1.604	1.694	1.649	.037	.066	.212
2	2	CNS	Right	2T	2	8	inch	.100	End-to-End	Lead		Top	Bottom	1.649	1.604	1.694	1.649	.037	.066	.212
3	3	Edger	Any	4W	1	4	inch	.100	End-to-End	Lead		Face		3.700	3.665	3.737	3.700	.030	.030	.070
4	4	Edger	Any	6W	1	4	inch	.100	End-to-End	Lead		Face		5.700	5.665	5.737	5.700	.030	.030	.070
5	5	Resaw	Bottom	2T	2	8	inch	.100	End-to-End	Lead		Top	Bottom	1.650	1.615	1.687	1.650	.030	.030	.070

The Bin Specs tab displays the specs that are currently in the Handheld. These specs may have been transferred from LSIZE on the PC or the LSIZE Mobile Lite Setup utility. The source of the bins specs is shown in the Handheld status on the communications tab.

The specs information can be displayed in the print preview and/or sent to a printer. The page orientation for this report is always landscape.

You can select a range (or all) of cells and copy these cells to the clipboard. You can then paste these cells into another application such as Excel.

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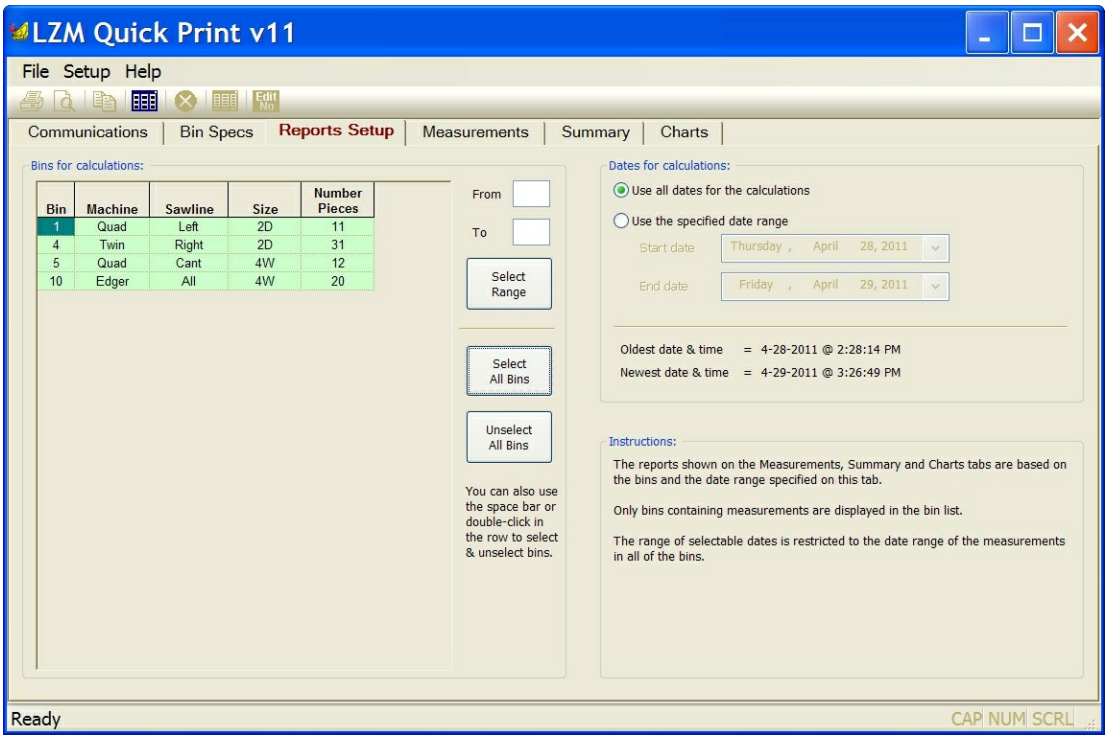
5.3 Report Setup


LZM Quick Print v11
File Setup Help
Communications
Bin Specs
Reports Setup
Measurements
Summary
Charts
Bins for calculations:
Bin
Machine
Sawline
Size
Number Pieces
1 Quad Left 2D 11
4 Twin Right 2D 31
5 Quad Cant 4W 12
10 Edger All 4W 20
From
To
Select Range
Select All Bins
Unselect All Bins
You can also use the space bar or double-click in the row to select & unselect bins.
Dates for calculations:
Use all dates for the calculations
Use the specified date range
Start date
Thursday , April 28, 2011
End date
Friday , April 29, 2011
Oldest date & time = 4-28-2011 @ 2:28:14 PM
Newest date & time = 4-29-2011 @ 3:26:49 PM
Instructions:
The reports shown on the Measurements, Summary and Charts tabs are based on the bins and the date range specified on this tab.
Only bins containing measurements are displayed in the bin list.
The range of selectable dates is restricted to the date range of the measurements in all of the bins.
Ready
CAP NUM SCRL

The Reports Setup tab allows you to select what bins you want to include in a report. You can also specify the range of dates to be used for the selected bins. If you change the selected bins or date range, the Measurement, Summary and Chart tabs will update when when one of these tabs are selected. The update consists of recalculating the statistics and displaying the results. This update process typically takes less than 0.5 seconds to complete.

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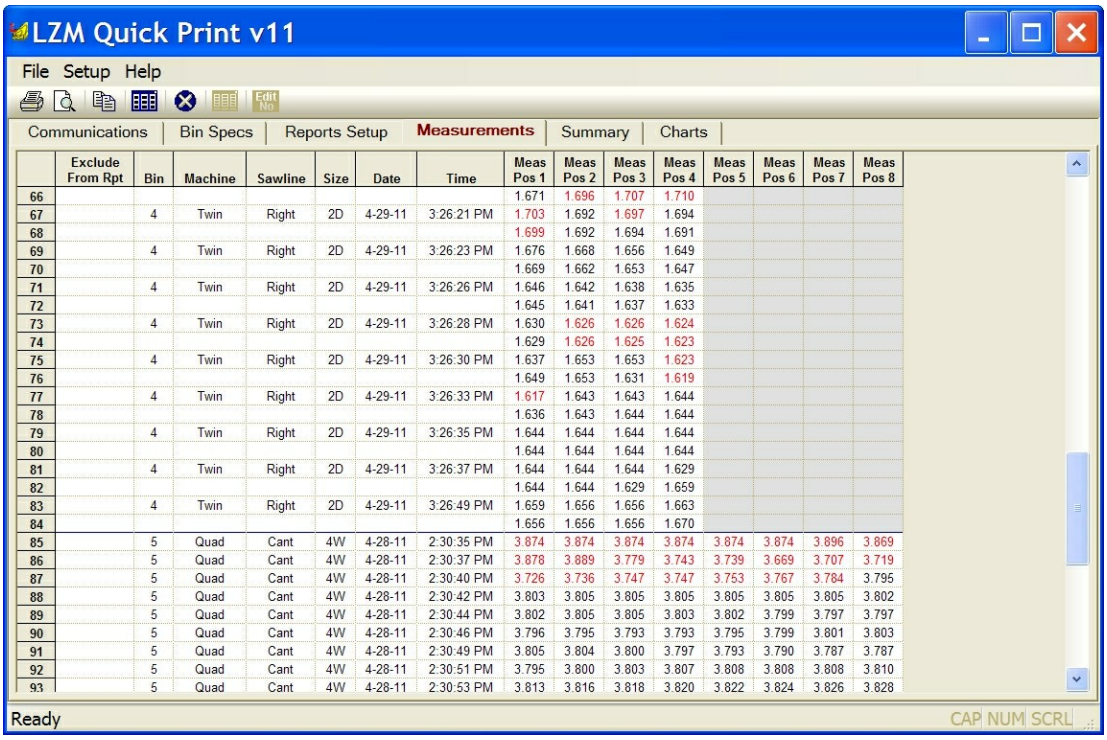
5.4 Measurements



	Exclude From Rpt	Bin	Machine	Sawline	Size	Date	Time	Meas Pos 1	Meas Pos 2	Meas Pos 3	Meas Pos 4	Meas Pos 5	Meas Pos 6	Meas Pos 7	Meas Pos 8
66								1.671	1.696	1.707	1.710				
67		4	Twin	Right	2D	4-29-11	3:26:21 PM	1.703	1.692	1.697	1.694				
68								1.699	1.692	1.694	1.691				
69		4	Twin	Right	2D	4-29-11	3:26:23 PM	1.676	1.668	1.656	1.649				
70								1.669	1.662	1.653	1.647				
71		4	Twin	Right	2D	4-29-11	3:26:26 PM	1.646	1.642	1.638	1.635				
72								1.645	1.641	1.637	1.633				
73		4	Twin	Right	2D	4-29-11	3:26:28 PM	1.630	1.626	1.626	1.624				
74								1.629	1.626	1.625	1.623				
75		4	Twin	Right	2D	4-29-11	3:26:30 PM	1.637	1.653	1.653	1.623				
76								1.649	1.653	1.631	1.619				
77		4	Twin	Right	2D	4-29-11	3:26:33 PM	1.617	1.643	1.643	1.644				
78								1.636	1.643	1.644	1.644				
79		4	Twin	Right	2D	4-29-11	3:26:35 PM	1.644	1.644	1.644	1.644				
80								1.644	1.644	1.644	1.644				
81		4	Twin	Right	2D	4-29-11	3:26:37 PM	1.644	1.644	1.644	1.629				
82								1.644	1.644	1.629	1.659				
83		4	Twin	Right	2D	4-29-11	3:26:49 PM	1.659	1.656	1.656	1.663				
84								1.656	1.656	1.656	1.670				
85		5	Quad	Cant	4W	4-28-11	2:30:35 PM	3.874	3.874	3.874	3.874	3.874	3.874	3.896	3.869
86		5	Quad	Cant	4W	4-28-11	2:30:37 PM	3.878	3.889	3.779	3.743	3.739	3.669	3.707	3.719
87		5	Quad	Cant	4W	4-28-11	2:30:40 PM	3.726	3.736	3.747	3.747	3.753	3.767	3.784	3.795
88		5	Quad	Cant	4W	4-28-11	2:30:42 PM	3.803	3.805	3.805	3.805	3.805	3.805	3.805	3.802
89		5	Quad	Cant	4W	4-28-11	2:30:44 PM	3.802	3.805	3.805	3.803	3.802	3.799	3.797	3.797
90		5	Quad	Cant	4W	4-28-11	2:30:46 PM	3.796	3.795	3.793	3.793	3.795	3.799	3.801	3.803
91		5	Quad	Cant	4W	4-28-11	2:30:49 PM	3.805	3.804	3.800	3.797	3.793	3.790	3.787	3.787
92		5	Quad	Cant	4W	4-28-11	2:30:51 PM	3.795	3.800	3.803	3.807	3.808	3.808	3.808	3.810
93		5	Quad	Cant	4W	4-28-11	2:30:53 PM	3.813	3.816	3.818	3.820	3.822	3.824	3.826	3.828

The Measurement tab displays shows the measurement used in the current calculated reports. Since you can have up to 8 measurements/edge, there are always 8 measurements columns. If the specs for the bin specify less than 8 measurements/edge, the unused columns are shown with a light gray background. If a measurement is out-of-spec, it is shown in red.

After a report is calculated, you can manually remove individual pieces from the report. To exclude a piece, place the focus cell on the piece and press the space bar. The background will change to a light yellow and the word Exclude will be display in the first column. Next select the Summary or charts tab to see the new calculation without the excluded pieces. The put a piece back into the calculations press the space bar when the focus cell is on the excluded piece. You can also click the toolbar button to unselect all of the excluded pieces.

The measurement information can be displayed in the print preview and/or sent to a printer. If the number of measurements/edge for any bin is 7 or 8, the orientation of the printed report will always be landscape. For 1 to 6 measurements/edge, the printed report can be portrait or landscape. The select for the printed report orientation is done in the Setup/Preferences dialog box.

You can select a range (or all) of cells and copy these cells to the clipboard. You can then paste these cells into another application such as Excel.

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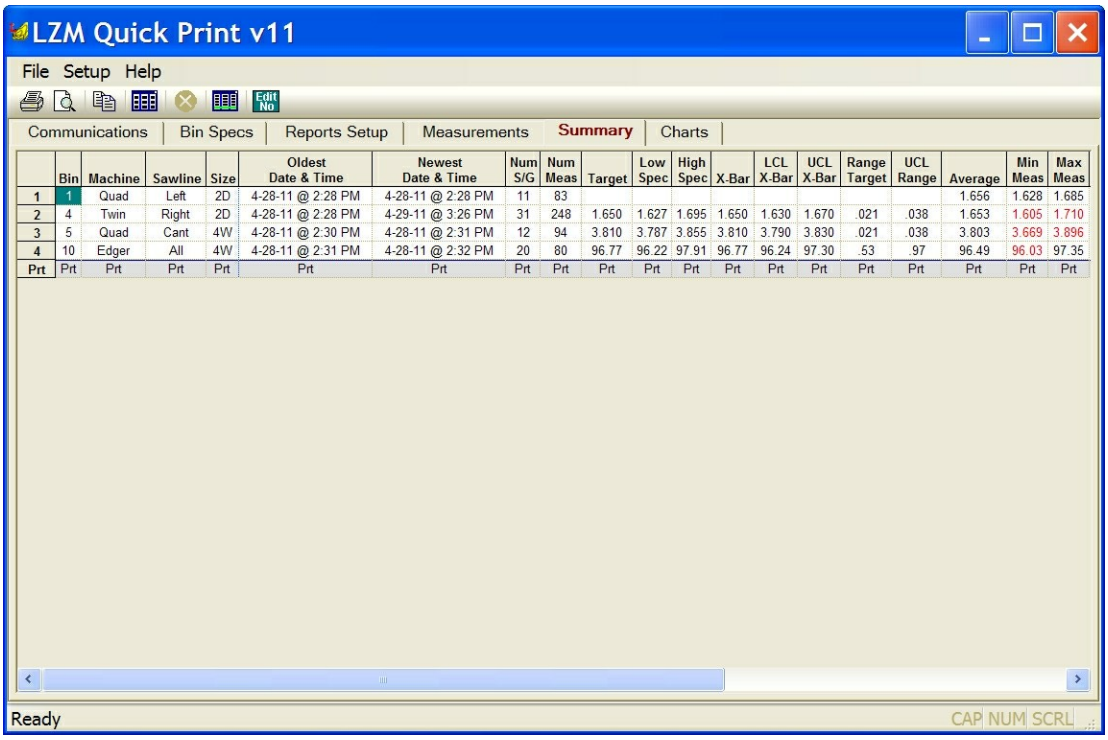
5.5 Summary



	Bin	Machine	Sawline	Size	Oldest Date & Time	Newest Date & Time	Num S/G	Num Meas	Target	Low Spec	High Spec	X-Bar	LCL X-Bar	UCL X-Bar	Range Target	UCL Range	Average	Min Meas	Max Meas
1	1	Quad	Left	2D	4-28-11 @ 2:28 PM	4-28-11 @ 2:28 PM	11	83									1.656	1.628	1.685
2	4	Twin	Right	2D	4-28-11 @ 2:28 PM	4-29-11 @ 3:26 PM	31	248	1.650	1.627	1.695	1.650	1.630	1.670	.021	.038	1.653	1.605	1.710
3	5	Quad	Cant	4W	4-28-11 @ 2:30 PM	4-28-11 @ 2:31 PM	12	94	3.810	3.787	3.855	3.810	3.790	3.830	.021	.038	3.803	3.669	3.896
4	10	Edger	All	4W	4-28-11 @ 2:31 PM	4-28-11 @ 2:32 PM	20	80	96.77	96.22	97.91	96.77	96.24	97.30	.53	.97	96.49	96.03	97.35
Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt	Prt

The Summary tab displays shows the calculated results for the bins included in the report. If a calculated value is outside of the calculated or specified limits, it will be shown in red.

The control limits (X-Bar and Range) show on this display are the limits set by the user. If no limits were set and Quick Print calculated the limit, the calculated limits are only shown on the charts.

You cannot change the columns that are shown on the display; however, you can specify what columns will be printed. The default columns to print can be set in the Setup/Preferences dialog box. You can make temporary changes to the columns to print by enabling the edit mode with the toolbar button Edit No, then moving to the last row in the grid. If you press the toolbar button, you will jump to the last row in the grid. You can toggle the columns to print by pressing the space bar or P character. The first 3 columns will always be printed.

The report orientation of this report will always be landscape. If you have specified more columns than can be printed with the page width, the additional columns will be printed on another page. If another page is printed, the first 3 columns will be repeated on the additional page.

You can select a range (or all) of cells and copy these cells to the clipboard. You can then paste these cells into another application such as Excel.

Report Columns

To someone who understands basic statistics, an explanation of the majority of the report columns is not necessary. If you do not understand basic statistics, you should get the

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appropriate training so that you can fully understand and utilize the information presented by Quick Print. For clarification purposes, we will explain a few of the columns included in the Summary Report.

Num S/G

Number of subgroups. The term subgroup is commonly uses in statistical process control (SPC) and refers to a piece that is being measured. For example if you are measuring lumber and you have measured 18 boards and you are taking 5 measurements along 2 edges, you have 18 subgroups with a subgroup size of 10.

Meas % Lo

The percent of measurements below the low spec limit.

Meas % Hi

The percent of measurements above the high spec limit.

Meas % On

The percent of measurements within the spec limits. The sum of % Lo + % On + % Hi will always be 100%.

% Pcs With Lo

The percent of the measured pieces (number subgroups) that contain at least 1 low measurement.

% Pcs With Hi

The percent of the measured pieces (number subgroups) that contain at least 1 high measurement.

% Pcs With On

The percent of the measured pieces (number subgroups) that only contain is-spec measurements. Unlike the % Meas calculations, the sum of % Lo + % On + % Hi for pieces does not have to equal 100%. It is possible to have pieces that contain both high and low measurements. The % Pieces calculations can indicated if the out-of-spec measurements tend to be on just a few pieces or are spread across most of the pieces measured.

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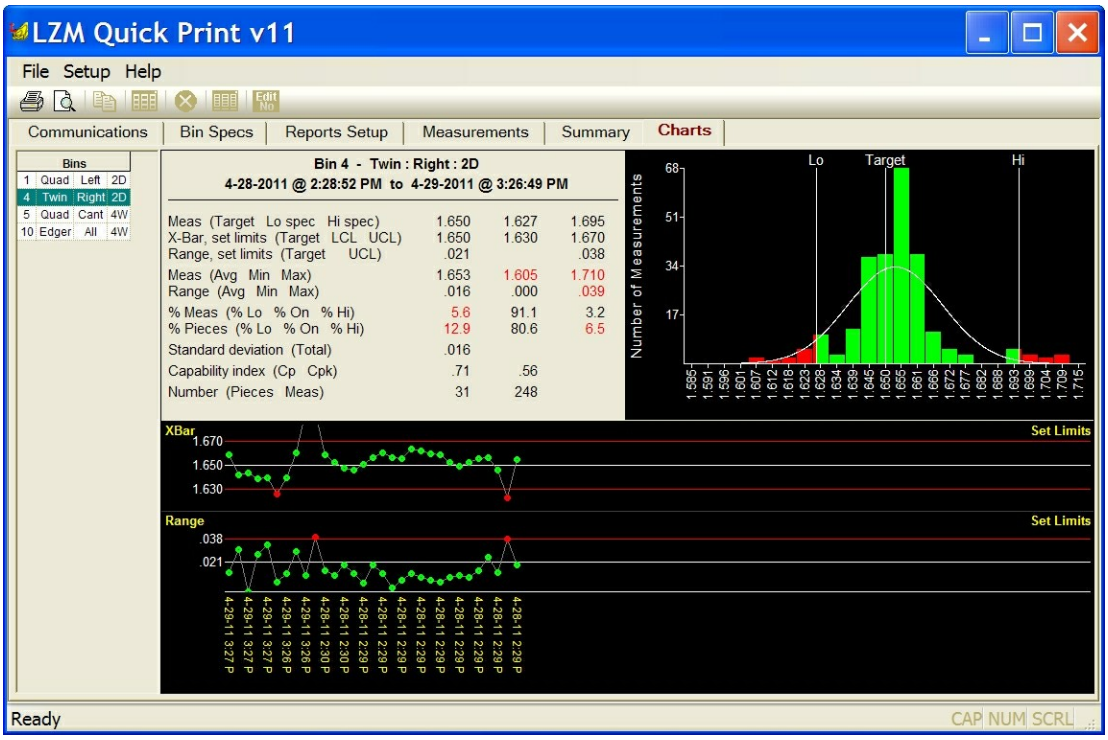
5.6 Charts


LZM Quick Print v11
File Setup Help
Communications
Bin Specs
Reports Setup
Measurements
Summary
Charts
Bins
1 Quad Left 2D
4 Twin Right 2D
5 Quad Cant 4W
10 Edger All 4W
Bin 4 - Twin : Right : 2D
4-28-2011 @ 2:28:52 PM to 4-29-2011 @ 3:26:49 PM
Meas (Target Lo spec Hi spec) 1.650 1.627 1.695
X-Bar, set limits (Target LCL UCL) 1.650 1.630 1.670
Range, set limits (Target UCL) .021 .038
Meas (Avg Min Max) 1.653 1.605 1.710
Range (Avg Min Max) .016 .000 .039
% Meas (% Lo % On % Hi) 5.6 91.1 3.2
% Pieces (% Lo % On % Hi) 12.9 80.6 6.5
Standard deviation (Total) .016
Capability index (Cp Cpk) .71 .56
Number (Pieces Meas) 31 248
Lo
Target
Hi
Number of Measurements
XBar
Set Limits
Range
Set Limits
Ready
CAP NUM SCRL

The Charts tab shows a statistical summary, histogram and control chart for each bin included in the calculation. Select the bin you want to display from the bins along the left edge of the window.

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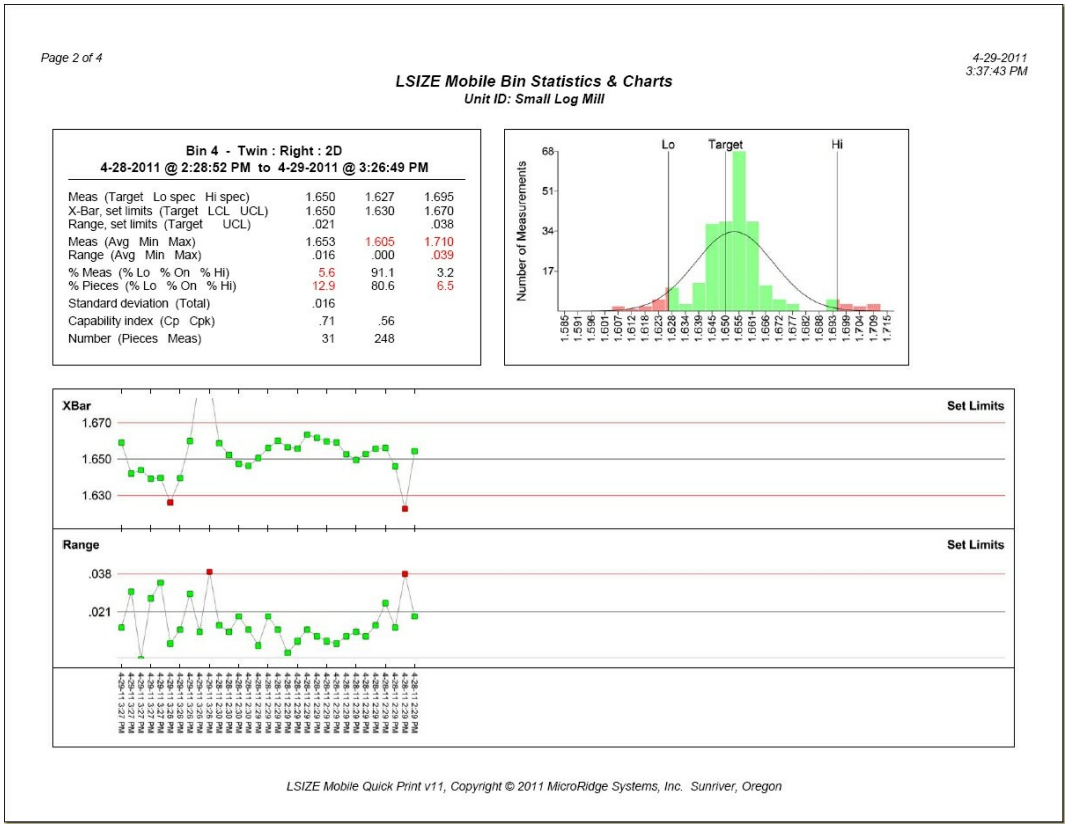
A sample printout of chart window is shown below. We recommend that the charts be printed on a color printer.



Page 2 of 4 *4-29-2011 3:37:43 PM*

LSIZE Mobile Bin Statistics & Charts
Unit ID: Small Log Mill

Bin 4 - Twin : Right : 2D
4-28-2011 @ 2:28:52 PM to 4-29-2011 @ 3:26:49 PM

Meas (Target Lo spec Hi spec)	1.650	1.627	1.695
X-Bar, set limits (Target LCL UCL)	1.650	1.630	1.670
Range, set limits (Target UCL)	.021		.038
Meas (Avg Min Max)	1.653	1.605	1.710
Range (Avg Min Max)	.016	.000	.039
% Meas (% Lo % On % Hi)	5.6	91.1	3.2
% Pieces (% Lo % On % Hi)	12.9	80.6	6.5
Standard deviation (Total)	.016		
Capability index (Cp Cpk)	.71	.56	
Number (Pieces Meas)	31	248	

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6 LSIZE Handheld

The Handheld used with LSIZE Wireless is a rugged unit designed for the industrial market. It is important that you carefully read this entire chapter on the Handheld. There are aspects of the Handheld operation that may not be apparent, and you will save yourself a lot of frustration by better understanding how the Handheld works. Especially important is the management of the battery charging. With the proper battery management, you should never experience a low battery condition. Additional documentation sources for the Handheld can be found in the Documentation section in this chapter.

6.1 Docking Station

The Docking Station is a key element in LSIZE Wireless and consists of the Docking Station along with various cables and adapters. It is important that you carefully follow the instructions for connecting the Docking Station to your computer. The Docking Station is used for the following functions with LSIZE Wireless.

- Communications with the LSIZE software on your PC for transferring product specs to the Handheld and receiving the measurements from the Handheld. This communications link uses the USB/RS-232 Adapter.
- ActiveSync communications between the Handheld and your PC. This communications link is used when you need to install or upgrade the LSIZE Mobile application. Refer to the ActiveSync section for additional details.
- Charging the internal Handheld lithium battery pack.
- Charging a spare lithium battery pack.

The components included with the Docking Station are listed below. Some of the items may not be used with your installation.

- Docking Station.
- AC Adapter with interchangeable plugs for worldwide use.
- USB ActiveSync cable with CD. You will not initially need to use this cable. Refer to the ActiveSync section for additional details.
- 3' USB extension cable
- USB/RS-232 Adapter with Null Modem adapter.
- 6' 9-pin (M/F) serial extension cable. You may not need to use this cable.
- 6' Serial to USB interface cable with CD. You may not need to use this cable.

There are 3 connections available on the back side of the Docking Station. These connections are used for the AC Adapter and the connections to your PC.

Left connection:	Round connector for AC Adapter.
Center connection:	Rectangular connector for data transfer to and from your PC. You should connect the 3' USB extension cable into this connection.

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Right connection: Square ActiveSync cable connection. You will not initially need to use this cable. Refer to the ActiveSync section for additional details.

Connecting the AC Adapter to the Docking Station

Connect the AC Adapter to a power source that will always be on. When you place the Handheld into the Docking Station for transferring data to and from your PC, the Handheld battery will be charging while the Handheld is in the Docking Station. If the AC Adapter is not always on, you may end up with a dead battery in the Handheld. You do not have to remove the Handheld from the Docking Station when the battery is fully charged.

Connecting the Docking Station to Your PC

Connecting Docking Station to PC
(3' Extension cable not show in example)

Connect the 3' USB extension cable to the center rectangular connector on the back of the Docking Station. Next connect the black USB/RS-232 Adapter with the Null Modem adapter to the USB extension cable. The last step is to connect the DB9 female connector on the USB/RS-232 Adapter to your PC. This final connection is done with the 6' serial extension cable or the 6' Serial to USB interface cable. The cable that should be used depends on the connections available on your PC.

Connection Using 6' Serial Extension Cable

If your PC has an available serial port you can use the serial extension cable to make the final connection to your PC. A PC serial port will be a DB9 male connector. Many newer PCs will not have any physical serial ports. If your PC does not have a physical port, you must use the Serial to USB cable described below.

Connection Using 6' Serial to USB Cable

If you will be using the Serial to USB cable, you must install the USB drivers before connecting this cable to your PC. To install the USB drivers, insert the USB drivers CD into your PC and follow the instructions on the screen. After the drivers are installed, connect the Serial to USB cable to the Null Modem adapter on the black USB/RS-232 adapter and to a USB port on your PC.

The final step in connecting the Docking Station to your PC is to let LSIZE know what serial port the Docking Station is connected to. Start the LSIZE software on your PC, open a database and select the *Wireless/Communications setup* menu item. Select the serial port that the Docking Station is connected to. If you are using a physical serial port, you will

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probably be selecting COM1 or COM2. If you are using the Serial to USB cable, you will be selecting a port that has a Registry Description such as \Device\VCP0, \Device\VCP1, etc.

6.2 ActiveSync & Windows Mobile Device Center

ActiveSync and Windows Mobile Device Center are Microsoft communication utilities that can be used to access and update the contents of the Psion Handheld. ActiveSync is used with Windows XP and Windows Mobile Device Center is used with Windows 7.

You will need to use one of these utilities if you update LSIZE Mobile on the Handheld to v11 from a previous version. Once you have LSIZE Mobile v11 installed on the Handheld, you will probably not have to use ActiveSync or Windows Mobile Device Center for program updates in the future. LSIZE Mobile v11 contains a function that allows you to update the software on the Handheld via the RS-232 serial cable.

6.3 Power On & Off

There is a dedicated power key to turn the Handheld on and off. To turn the Handheld on, press and hold the Power key. Once you see the Handheld starting to come on, release the Power key. To turn the Handheld off, press and release the Power key. Refer to the diagram below for the location of the Power key.

Handheld Keys Used to Turn Unit On and Off.

To conserve battery life, you should always turn the Handheld off when you are done using the unit.

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Automatic Power Off

The Handheld will automatically shut down if there is no activity for a period of time. There are separate timeout periods when the Handheld is being powered by the internal battery pack and when the Handheld is being powered by an AC adapter. The timeout periods are set in the Setting dialog. To get to the Setting dialog, follow the steps below.

- Select the icon in the upper left corner of the screen or press and release the Windows Logo key.
- The Start menu should be displayed along the left side of the screen.
- Select the Settings item near the bottom of the menu list.
- The Setting dialog will be displayed.
- Select the Systems tab along the bottom of the screen.
- Select the Power icon.
- Select the Advanced tab.
- You will see power off times for "On battery power" and "On external power". The recommended settings for these values are as follows:
  - On battery power: 5 minutes
  - On external power: 15 minutes

6.4 Battery

The Handheld is powered by a 4,400 mAh rechargeable lithium-ion battery pack. This battery is charged when the Handheld is placed in the Docking Station or when an AC adapter is connected to the power port on the bottom of the Handheld. The battery is accessed from the lower rear of the unit by rotating the 2 silver battery fasteners. If you need to remove the battery, be sure you turn the Handheld off before opening the battery compartment. Once the battery is removed, the internal backup battery will prevent data loss for up to 5 minutes. A spare battery can be charged in the Docking Station in the area behind the Handheld.

The lithium-ion battery used in the Handheld does not experience the memory problems that were common in the older NiCad battery technology. With NiCad batteries, you should drain the batteries before recharging them. With lithium-ion batteries, you can used the battery for a brief period of time and then recharge the battery without causing any battery degradation problems.

Battery Life & Recharge Time

With proper management of the Handheld, you should never run into a low battery condition. We ran a battery life test for 12 hours with the Handheld and the Mobile Base radio at full power. After the the 12 hour test, the battery capacity remaining was 14%. When you are collecting wireless measurements, your power on time in a 24 hour period will be much less than our 12 hour test. Typically, we would expect less than 4 hours of measurement collection time in a 24 hour period. After running the 12 hour test, we recharged the Handheld in the Docking Station and it took about 4 hours to bring the battery up to the 100% level.

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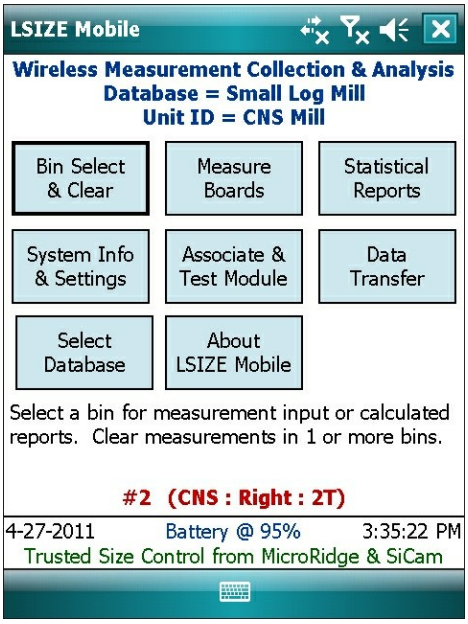
To keep the battery pack at the highest level of charge you should follow the steps below. If you detect that the battery seems to discharge faster than when it was new, you should contact MicroRidge Systems and order a spare battery pack.

- Leave the Handheld in the Docking Station after downloading measurements and at the end of the shift.
- Leave the Handheld in the docking Station at the end of the day.
- If you have more than 1 Handheld and only a single Docking Station, purchase an AC Adapter for each Handheld so that they can be kept charged.
- If you download your measurements at the main office once a day (or every few days), and you keep the Handheld in the sawmill office, purchase an AC Adapter so that you can charge the Handheld in the sawmill office.

Even when the Handheld and its internal radio are off, the Handheld is still using battery power. If the Handheld is not used for a week, it will loose about 50% of its battery capacity. We recommend that if the Handheld is not being used on a regular basis, you fully charge the Handheld at least once a week.

Battery Capacity Indicator

There are several ways to view the remaining Handheld battery capacity. The easiest one to view is displayed on the main LSIZE Mobile screen. The percent of battery capacity remaining is shown in blue near the bottom of the main LSIZE Mobile screen. When the battery capacity is at or below 20%, the battery capacity status will switch to blinking red characters (Battery @ 19%).


LSIZE Mobile
Wireless Measurement Collection & Analysis
Database = Small Log Mill
Unit ID = CNS Mill
Bin Select & Clear
Measure Boards
Statistical Reports
System Info & Settings
Associate & Test Module
Data Transfer
Select Database
About LSIZE Mobile
Select a bin for measurement input or calculated reports. Clear measurements in 1 or more bins.
#2 (CNS : Right : 2T)
4-27-2011
Battery @ 95%
3:35:22 PM
Trusted Size Control from MicroRidge & SiCam

Main screen showing battery capacity at 95%

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6.5 Keypad

There are only a few of the keys on the Handheld that you will need to use. Most of the keys require only a single press. However, there are a couple of key sequences that require you to press the Blue FN key followed by an additional key. The keys that are used by LSIZE Mobile are shown on the picture below.

Keys used by LSIZE Mobile

The function of the keys and key sequences are listed below. For multiple key sequences, press and release the first key and then press and release the second key.

Tab	Move input focus to next dialog control.
Blue FN	This key is used in connection with other keys such as F1, F10 and Enter. To turn the Handheld off, press the Blue FN key and then press and release the Enter key.
FN + F1	Show help text. Press and release Blue FN key and then press and release F1 key.
FN + F10	Enter a missing measurement. Press and release Blue FN key and then press and release F10 key.
Escape	Exit the current window.
Cursor	Move input focus within a window. There are 4 cursor keys: left, right, up and down. There are no keys for PgUp, PgDn, Home or End.
Enter	Press and hold to turn on or press to select item with current input focus.
`Windows	Show Start Menu items. This key sequence will not work if you have hidden the Windows Start menu. Refer to the Configuration Switches for more information.

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6.6 Reboot (Warm Reset)

You can do a reboot or warm reset of the Handheld by pressing 2 specific keys. Doing a reboot should only be required if you are having a problem with an application. If an application will not properly start or you cannot close the application, you probably should reboot the Handheld. When you reboot your Handheld, the registry settings and any installed programs (stored on the flash file system) and data are preserved.

If you need to reload the Windows Mobile 6 operating system, refer to "Resetting the WORKABOUT PRO Handheld" in the Psion User Manual. Refer to the Documentation section for information on how to access the Psion User Manual.

Follow the sequence described below to reboot your Handheld.

- Turn off the Handheld.
- Press and hold the Blue FN key and the Power Key simultaneously for a minimum of 8 seconds.
- Release the keys when information starts to appear on the screen.
- When the main screen appears, the Handheld is ready to use.
- It may take about 30 seconds for the main screen to appear.

6.7 Touch Screen

The graphic user interface in Windows Mobile 6 utilizes a "point & click" navigation. On the Handheld this is accomplished using a touchscreen and a stylus rather than a mouse. In addition to the stylus, LSIZE Mobile is designed for navigation by using the keypad or a finger.

Do not use metal objects such as a caliper on the touch screen.
Do not use a pen or a pencil as a stylus.

Clear plastic screen protectors are available for the Handheld and are highly recommended. Refer to Spare Parts & Accessories for more information.

6.8 Date & Time

When you record the first measurement for a board, the date and time are also recorded. It is very important that the Handheld has the proper date and time. The current Handheld date and time are displayed near the bottom of the main LSIZE Mobile screen. The Handheld date/ time are automatically checked when you transfer specs to the Handheld or you send measurements to the LSIZE software on your PC. If the the date/time difference between your Handheld and PC is more than 2 minutes, the Handheld date/time will be adjusted to match the date/time on your PC. Therefore, if your PC has the wrong time, your Handheld will also have the wrong time.

Be Sure Your PC Has the Proper Date & Time

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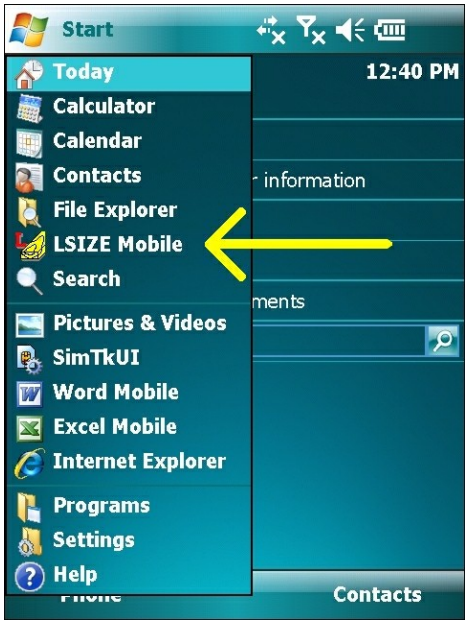
6.9 Mobile Base

The Handheld is purchased from Psion and MicroRidge Systems adds its Mobile Base to an expansion slot within the Handheld. This Mobile Base contains the radio and the firmware for communicating with the Mobile Module attached to your gage. The Mobile Base is powered by the Handheld battery pack.

The Mobile Base contains a processor and firmware in flash memory. When firmware updates become available for the Mobile Base, the firmware can be updated via the Docking Station and the serial connection used by the LSIZE software on your PC.

6.10 Starting LSIZE Mobile

When LSIZE Mobile is installed on the Handheld, an icon is placed in the Start Menu list. To start LSIZE Mobile, select the Start Menu and then select LSIZE Mobile. As shown below, there will probably be several other programs in the Start Menu list.



Start Menu with LSIZE Mobile

Another way to start LSIZE Mobile is to open the File Explorer from the Start Menu and navigate to Program Files\LSIZE Mobile. Find the LSIZE_Mobile application and run it.

6.11 Other Applications

There are several other applications that come with the Handheld. These applications are embedded in the Handheld and cannot be removed. MicroRidge Systems does not support these other applications and will not answer questions about these other applications. The MicroRidge Systems application support is limited to LSIZE Mobile.

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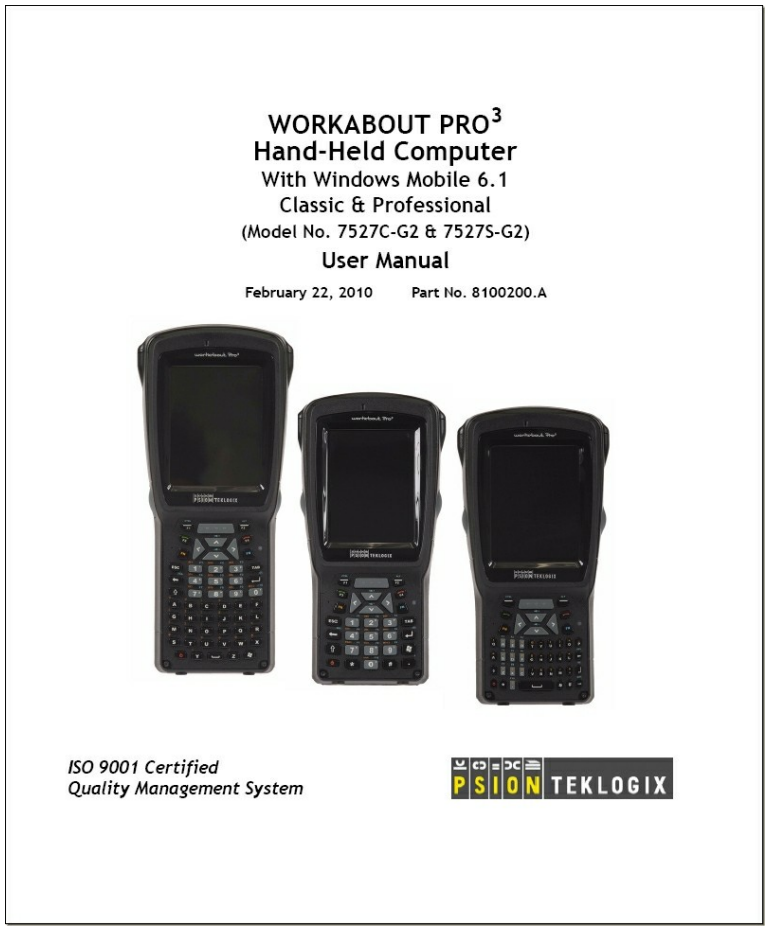
6.12 Documentation

Additional documentation covering the Psion WORKABOUT PRO Handheld is available in a PDF document from Psion. The Psion User Manual contains over 300 pages of information and most of this information is not really needed for the LSIZE Wireless user. We recommend that you do take a look at the Psion User Manual so that you can determine if there are additional features that may be of interest to you.

The cover from the Psion User Manual is shown below and the entire PDF manual is available on the LSIZE CD.



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7 Mobile Module

The Mobile Module provides the wireless link between your gage and the Handheld. The Mobile Module was designed to mount on the back side of a caliper or to a micrometer. Even though the Mobile Module can be used with any gage that has an SPC output, we recommend that you use only Mitutoyo gages with the Mobile Module. If you use other gage brands with the Mobile Module, your gage cable replacement cost will be higher and the Mobile Module battery life will typically be reduced. Additionally, MicroRidge stocks replacement parts for Mitutoyo calipers, but does not have replacement parts and does not repair other brands of gages.

LSIZE Mobile Module Shown with Mitutoyo Caliper Cable

The Mobile Module is easy to set up and use. Carefully read the following sections about the Mobile Module so that you fully understand the buttons, LED indicators and the concept of Mobile Module association.

Key features of the Mobile Module include:

- Compact design measures 2.14" x 1.44" x .79" and weighs 1.6 oz.
- Threaded inserts and captive panel screws used to secure the Mobile Module case cover (you will not lose screws or strip threads in plastic case when changing cables or replacing batteries).
- Push buttons on Mobile Module (Setup & Read) rated for 1,000,000 cycles.
- User can replace the battery & gage cable without removing the Mobile Module from the gage.
- Highly visible LEDs indicate successful gage reading and wireless transmission.
- Advanced power management eliminates the need for on/off switch.
- Uses one commonly available CR2 Photo Lithium battery.
- Firmware (software within the Mobile Module) can be upgraded in the field.

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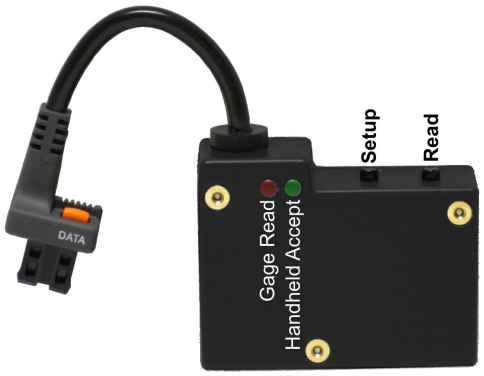
- Uses proven wireless technology. MicroRidge Systems has been shipping wireless systems to general manufacturing since October 2006.

7.1 Buttons & LEDs

The Mobile Module contains 2 push buttons and 2 LEDs. The picture below shows the location of the buttons and LEDs. When the LEDs are off, the lenses over the LEDs will appear clear. When an LED is turned on, it will be a bright red or green as shown in the picture.



Mobile Module Buttons & LEDs

The 2 push buttons are located along the top edge of the Mobile Module just to the right of the gage cable. There may also be a third button on your gage cable.

Read Mode

The Mobile Module must be associated with a Handheld before any data will be accepted by the Handheld. To associate a Mobile Module with a Handheld refer to the Associate with Handheld section.

To send a gage reading to a Handheld, be sure your gage is turned on and connected to the Mobile Module. Press the read button on the gage cable or the Mobile Module to start the transmission process. When you press the read button and the gage reading is successfully sent to the Handheld, the Mobile Module will go through the following steps. Remember, the Mobile Module must be associated with the Handheld before any data will be accepted by the Handheld.

- The Mobile Module wakes up and requests a reading from the gage
- When a gage reading is obtained, the Red Gage Read LED is turned on and the radio is turned on. The Gage Read LED will be turned off after about 150 milliseconds (msec).
- A measurement packet is sent to the Handheld that the Mobile Module is associated with.
- When the Mobile Module receives notification from the Handheld that the measurement packet was received, the radio is turned off and the Green Handheld Accept LED is turned on. The Handheld Accept LED will be turned off after about 150 msec.

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- After the Handheld LED is turned off, the Mobile Module will enter a low power sleep mode.
- The entire process from turning on the Mobile Module to turning it off typically takes from 250 to 350 msec. The actual time the transmitter is sending data is about 20 msec (0.020 seconds).

If there were problems with the measurement capture process, wireless transmission or low battery condition, the LEDs will blink to indicate the nature of the problem. Refer to the LED Error Codes section for more details.

Setup Mode

The Setup button is used to put the Mobile Module into the Setup Mode. The Setup Mode is used for the following procedures:

- Associating a Mobile Module with a Handheld.
- Updating the firmware in the Mobile Module.
- Diagnostic procedures per MicroRidge technical support.

To enter the Setup Mode follow the steps below. You do not have to turn your gage off or disconnect it from the Mobile Module prior to entering the Setup Mode.

- Press and hold the Setup button.
- While you continue to press the Setup button, press and release the Read button.
- Once both LEDs start to flash, release the Setup button.

Both LEDs will flash 5 times when the Mobile Module enters the Setup Mode. When in the Setup Mode, both LEDs will quickly flash every 300 msec (0.3 seconds). The Mobile Module will exit the Setup Mode and turn itself off after 20 seconds of inactivity. To exit the Setup Mode prior to the 20 second timeout, press the Read button.

Use of the Setup Mode is required when you Associate a Mobile Module with a Handheld. Refer to the Associate with a Handheld section for the steps required for association.

7.2 Installation on a Caliper

The Mobile Module should be attached to your gage (caliper, micrometer, etc.) with the adhesive provided with the Mobile Module. The Mobile Module should be mounted in such a way that all of the following items are true.

- The LEDs are visible to the operator.
- The Read button on the Mobile Module is accessible to the operator.
- The Mobile Module cover can be removed without having to remove the Mobile Module from the gage. This allows for easy access in replacing the gage cable and battery.

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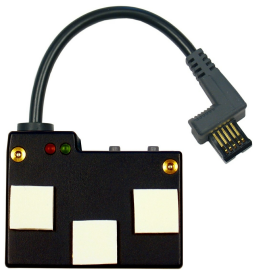
Installation on a Caliper

When the Mobile Module is used with a caliper, it is typically mounted on the back side of the caliper as shown in the illustration below.

Mobile Module Mounted on a Caliper



Recommended Adhesive Placement on Mobile Module

The Mobile Module should be mounted so that the 2 LEDs are visible along the top edge of the caliper. These LEDs are used to notify the user that the gage was read and the data was received by the Handheld. When mounted in this fashion on a caliper, you can still gain access to the batteries and replace the gage cable without having to remove the Mobile Module from the caliper.

The Mobile Module should be attached to the caliper with 3 foam adhesive pads as shown above. There are several sets of these foam adhesive pads supplied with each Mobile Module.

7.3 Associate with a Handheld

All of the Mobile Modules and the Mobile Base radio receivers in the Handhelds operate on the same radio frequency. If you have multiple Handhelds and Mobile Modules operating within range of each other, we need to be sure that measurement data from a Mobile Module is only processed by the desired Handheld. The process of linking a Mobile Module to a specific Handheld is referred to as Association. When a Mobile Module sends a measurement packet, in addition to the measurement data, the packet also contains address information that identifies the target Handheld. If a Handheld receives a measurement packet and the address information in the packet does not match the address information in the Handheld, that measurement packet is discarded. When a Handheld receives a measurement packet with matching address information, the Handheld verifies that the measurement packet is valid, and if the packet is valid, the Handheld sends a data received acknowledgement back to the Mobile Module. The Handheld address information that is used in the wireless communications is all preset and the user does not have to manually enter this address information.

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Steps for Association

To Associate a Mobile Module with a Handheld, follow the steps below. You may find it useful to use the stylus when working with the Association display. The Association procedure is also outlined in the Help available from the Association Display. Help can be accessed by pressing and releasing the Blue FN key and then F1 or by selecting the symbol in the upper right corner of the display.

- Start LSIZE Mobile and select "Associate & Test Module".
- The button in the lower right-hand corner will be labeled "Enable Edit" or "Enter Password". If the button is labeled "Enable Edit", press the button and proceed to the next step. If the button is labeled "Enter Password", press the button and enter the password. Refer to the Configuration Switches for more information.
- Check the "Enable the Mobile Module Association" box.
- You can have up to 7 Mobile Modules associated with a Handheld. Through the Configuration Switches, you can specify if only a single Mobile Modules or all of the Mobile Modules can be active at any one time.
- Select the radio button (1 to 7) where you want to place the Association information. It really does not matter which radio button is selected.
- Place the Mobile Module into the Setup Mode. Refer to Setup Mode in the Buttons & LEDs section in this chapter.
- Press and release the Setup button on the Mobile Module. In a few seconds you should see the Mobile Module ID displayed on the Handheld. The Mobile Module is a unique identifier starting with UM and followed by 4 digits (ie: UM0001).
- The Mobile Module is now Associated with the Handheld and the next step is to check the Active box next to the Mobile Module you want to use with the Handheld.
- To test the operation of the Mobile Module, select the "Meas Test" tab and take a reading with your gage.

7.4 Battery & Cable Replacement

The batteries and gage cable can be accessed by removing the Mobile Module top cover held in place by the 3 screws. These screws are captive panel screws and should only be loosened enough to remove the cover from the bottom assembly of the enclosure. A small screwdriver is included with the Mobile Module for the loosening of these screws. The screws are secured in the bottom assembly of the enclosure by brass inserts. These brass inserts provide a secure method of holding the cover in place and eliminate the possibility of stripping threads in the plastic case. When replacing the Mobile Module cover, just tighten the screws so they are snug. If you over tighten the screws, it is possible to pull the brass inserts through the case.

Caution: The components within the Mobile Module are subject to damage as a result of static electricity. Be sure to ground yourself before touching any component within the Mobile Module.

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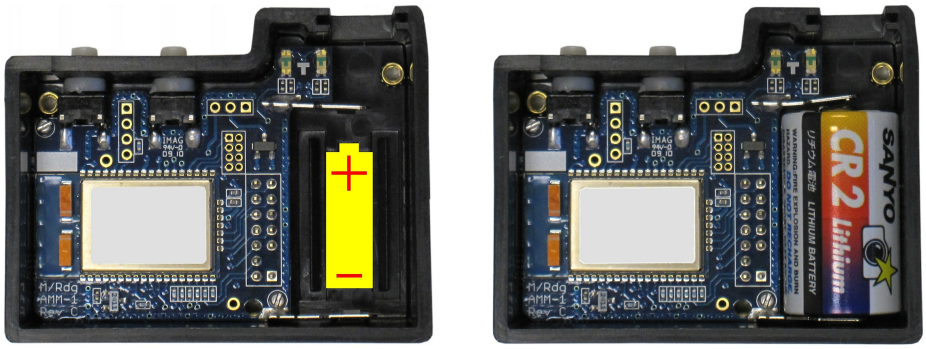
Battery

The battery used by the Mobile Module is a CR2, 3 volt photo lithium battery. This battery is available from MicroRidge Systems and anywhere photo batteries are sold. The Mobile Module case shown on the left in the picture below has the battery orientation highlighted in the picture. The negative terminal is on the flat side of the battery and is the same as found on standard AA, C and D cell batteries. The positive terminal must be installed toward the top of the case.

The Mobile Modules shown below utilize the new MicroRidge radio technology that was released in mid 2010. The color of the enclosure for your Mobile Modules may be blue (as shown on previous pages) or black as shown in the photos below. The save and placement of the battery is the same for all of the Mobile Modules used with LSIZE Mobile.



No Battery Installed **Battery Installed**

Mobile Module Interior

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Gage Cables

The gage cable should be installed as shown in the photo below. The wires coming from the black grommet should press against the positive battery contact and then curve toward the top of the case.

Mobile Module Gage Cable

To replace a gage cable, follow the steps below:

- Remove the Mobile Module cover.
- Note how the current gage cable is installed.
- Ground youself to eliminate any static charge.
- Remove the battery from the Mobile Module.
- Remove the current gage cable by pulling up on the wires going into the connector.
- Press and release the Setup or Read button to remove stored voltage in the Mobile Module.
- Install your new gage cable.
- Replace the battery.
- Replace the Mobile Module cover.
- Press and release the Setup button. You should see the LED blink back and forth 3 times as the Mobile Module does a Warm Start. When the Mobile Module does a Warm Start, it will identify the gage cable connected to the Mobile Module.

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7.5 LED Error Codes

There are several LED blink sequences associated with the Mobile Module. These blink sequences provide information to the user about reading failures, wireless transmission failure, low battery, etc. Normally the user only needs to be concerned with the error code sequences shown in the table below.

LED Error Codes for Typical Operation

What You Observe	Things to Check
You press the Read button and after a few seconds, the red Gage Read LED flashes several times.	The Mobile Module could not get a reading from the gage. • Is your gage turned on and is the gage cable connected to the gage? • Do you have a defective gage cable?
You press the Read button and the red Gage Read LED comes on. However, the green Handheld Accept LED blinks several times.	You got a reading from the gage, but you did not receive an acknowledgement that the data was received by the Handheld. • Have you associated the Mobile Module with the Handheld? • Are you within range of the Handheld?
You press the Read button and both the red Gage Read and green Handheld Accept LEDs come on steady for a brief period. After the LEDs turn off, the red Gage Read LED blinks several times.	You got a gage reading and the measurement packet was received by the Handheld. However, you have a low battery condition in the Mobile Module. You should replace the batteries as soon as possible.

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8 LSIZE Mobile Software

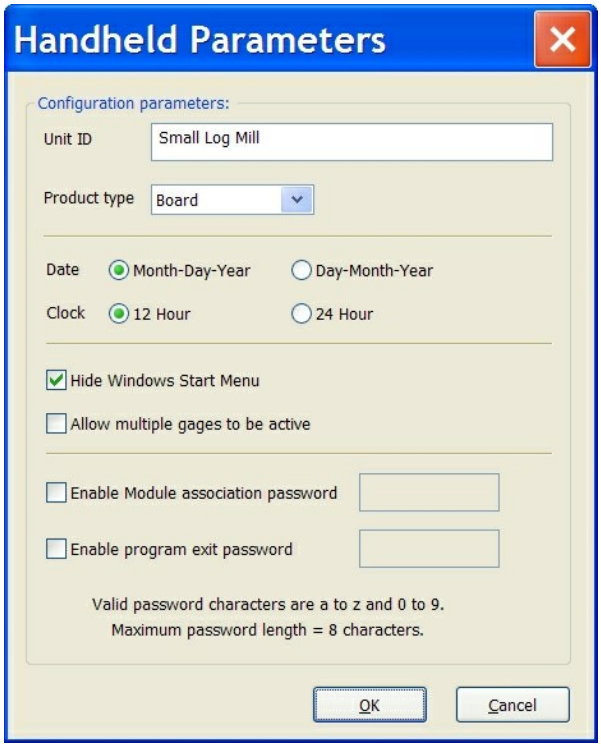
The MicroRidge Systems developed software for the Handheld is called LSIZE Mobile. LSIZE Mobile provides displays for functions such as for bin selection, measurement input, reports selection, data transfer with the LSIZE software on your PC, etc. Most of the operation of LSIZE Mobile can be performed with specific keys on the keypad or by using the touch screen. Refer to the Keypad section in the LSIZE Handheld chapter for more details.

The following sections cover each of the functions available from the Main Screen. If a screen displays the symbol in the upper right corner of the screen, a Help window is available. In order to access the Help item, select the symbol or press and release the Blue FN key, then press the F1 key.

The last section contains information that explains the LSIZE Mobile Registration ID. Normally the only time you have to enter a Registration ID is when you do a major version upgrade of LSIZE Mobile. A new Registration ID is not required for bug fixes or minor updates.

8.1 Handheld Parameters (Lite Setup)

The Handheld Parameters are used to set Handheld operating characteristics that are not bin dependent and are defined in LSIZE Mobile Lite Setup. These parameters need to be configured if you are using the Lite Setup utility to configure LSIZE Mobile. Refer to the LSIZE Mobile Lite Setup section for more information.



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8.2 Configuration Switches (LSIZE on PC)

The Configuration Switches are used to set Handheld operating characteristics that are not bin dependent and are defined in LSIZE on your PC. To access the Configuration Switches, select the *Wireless/Setup bin specs* menu item on the PC. The LSIZE Mobile Bins Specifications dialog box show below is displayed when the "Config Sw" button is pressed. The Configuration Switches are downloaded to the Handheld each time bin specs are downloaded to the Handheld. The default values for the Configuration Switches are shown in the dialog below. These parameters need to be configured if you are using the LSIZE on the PC to configure LSIZE Mobile.

LSIZE Mobile Configuration Switches
Configuration Options:
Date
Month-Day-Year
Day-Month-Year
Clock
12 Hour
24 Hour
Hide Windows Start Menu
Allow multiple gages to be active
Enable Module association password
Enable program exit password
Valid password characters are a to z and 0 to 9.
Maximum password length = 8 characters.
Product & Process Labels:
Product type
Board
Process center
Machine
Location
Sawline
Product code
Size
Days to Retain Product Measurements:
Number of days
14
LSIZE Mobile will automatically delete product measurements from the Handheld that are older than the specified number of days. LSIZE Mobile will automatically manage the product measurement deletion and what measurements need to be sent to LSIZE on your PC.
Configuration Switch Usage:
There is only a single set of config switches used for all bin spec files in a database. You do not have to configure these switches for each file.
Help
OK
Default
Cancel

Date

This switch allows you set the format of the date display to a Month-Day-Year or Day-Month-Year.

Clock

This switch allows you set the format of the time display to a 12-hour (ie: 2:38 pm) or 24-hour (ie: 14:38)clock.

Hide Windows Start Menu

The Windows Start Menu is located in the upper left hand corner of the screen. If the Start Menu is enabled, the user will be able to navigate from LSIZE Mobile to other applications on the Handheld (i.e. Games, etc). If the Start Menu is hidden and you enable a password for program exit, the user will not be able to access other applications on the Handheld.

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Allow Multiple Gages to be Active

This item should only be checked if you need to switch gages in during your normal measurement collection process. For example, you may use an 8" caliper for some measurements and you use a 12" caliper for measuring the wider products.

Mobile Module Association Password

If you need to prevent the user from changing the Mobile Module association, check this box and enter a password. The actual password is not hidden in this dialog. This display of the password is done so that when you forget your password (and some of you will), you can enter this dialog to determine what the password is set to.

Program Exit Password

If you need to prevent the user from exiting LSIZE Mobile, check this box and enter a password. The actual password is not hidden in this dialog. This display of the password is done so that when you forget your password (and some of you will), you can enter this dialog to determine what the password is set to.

Product Type

The product type can be selected from a predefined list. The product type label is used in numerous locations in LSIZE Mobile. If you would like additional product types added to the list please contact us.

Process Center, Location and Product Code

These process labels can be selected from predefined lists. The process labels are used in a few locations in LSIZE Mobile. If you would like additional process labels added to the lists please contact us.

Number of Days to Retain Measurements

LSIZE Mobile will automatically delete product measurements from the Handheld that are older than the specified number of days. LSIZE Mobile will also automatically manage the product measurement deletion and what measurements need to be sent to LSIZE on your PC. To specify how long downloaded should be preserved on the Handheld, select a value from the list.

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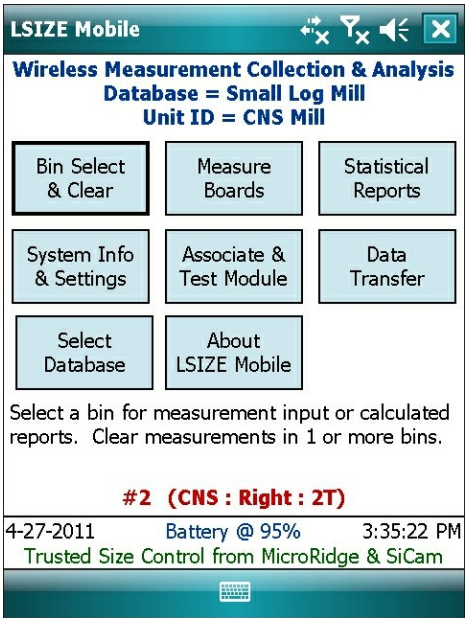
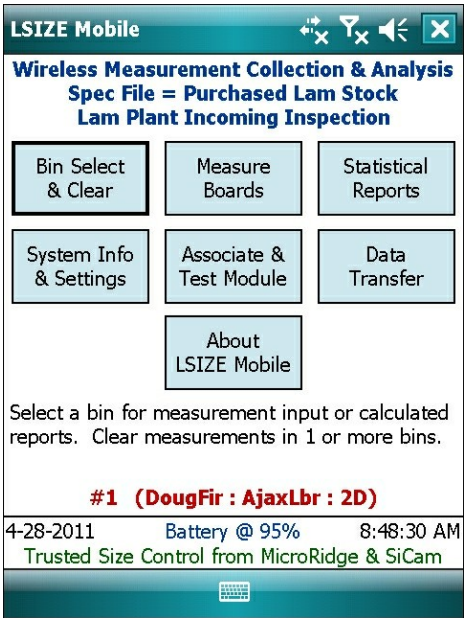
8.3 Main Screen


LSIZE Mobile
Wireless Measurement Collection & Analysis
Database = Small Log Mill
Unit ID = CNS Mill
Bin Select & Clear
Measure Boards
Statistical Reports
System Info & Settings
Associate & Test Module
Data Transfer
Select Database
About LSIZE Mobile
Select a bin for measurement input or calculated reports. Clear measurements in 1 or more bins.
#2 (CNS : Right : 2T)
4-27-2011 Battery @ 95% 3:35:22 PM
Trusted Size Control from MicroRidge & SiCam

Main LSIZE Mobile Screen When Set Up with LSIZE on the PC


LSIZE Mobile
Wireless Measurement Collection & Analysis
Spec File = Purchased Lam Stock
Lam Plant Incoming Inspection
Bin Select & Clear
Measure Boards
Statistical Reports
System Info & Settings
Associate & Test Module
Data Transfer
About LSIZE Mobile
Select a bin for measurement input or calculated reports. Clear measurements in 1 or more bins.
#1 (DougFir : AjaxLbr : 2D)
4-28-2011 Battery @ 95% 8:48:30 AM
Trusted Size Control from MicroRidge & SiCam

Main LSIZE Mobile Screen When Set Up with LSIZE Mobile Lite Setup

The Main Screen is displayed when you start LSIZE Mobile and is used to navigate between the various functions of LSIZE Mobile. To access a function, you can press the function button on the screen or used the cursor keys and Enter key to select a function. The text below the function buttons provides a brief description of the button with the focus.

Database Name

This title is shown on line 2 and is the name of the current active database. This name is the database filename (excluding the .lsz extension) used by LSIZE on your PC.

Unit ID

This item is shown on line 3 and the Unit ID of the bin specs file transferred from LSIZE on your PC. The Unit ID string can be change in LSIZE on your PC by selecting the *Wireless/ Setup bin specs* menu. From the LSIZE Mobile Bin Specs setup dialog, press the Unit ID button.

Current Bin Number, Machine Center, Sawline & Size Code

These items are displayed in dark red near the bottom of the screen. This information automatically changes when a new bin is selected. If K/B appears after the bin number, keyboard entry of data is allowed for the bin. The keyboard entry option is specified when you set up the bin specs through LSIZE on the PC.

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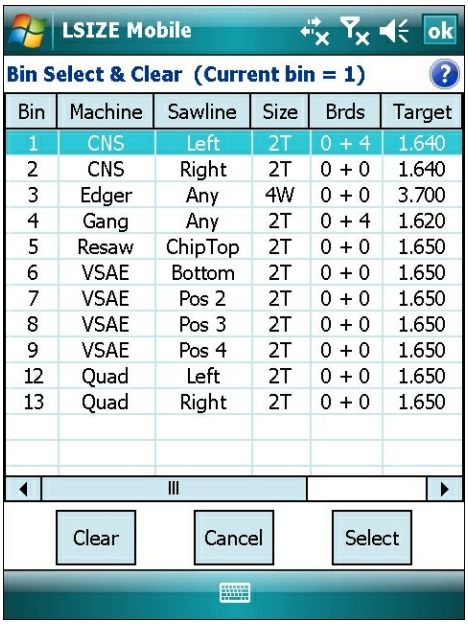
Handheld Date & Time

The current data and time are displayed near the bottom of the screen. You should check these values daily to be sure they are correct. When you send specs to the Handheld or read measurements from the Handheld with the LSIZE software on your PC, the date and time values are always checked. If the time between the handheld and PC differ by more than 2 minutes, the Handheld will be updated to match the time on your PC. Therefore, if the date and/or time are incorrect on your Handheld, they will also be incorrect on your PC. Be sure your PC time is correct.

Battery Charge Remaining

This item is also displayed near the bottom of the screen. The value displayed is a percent of the full battery capacity. You should monitor the battery capacity so that you do not end up with a dead battery while trying to take measurements. With proper management, you should never have a low battery issue. Refer to the Battery section in the LSIZE Handheld chapter for additional information about the battery.

8.4 Bin Select & Clear


LSIZE Mobile
ok
Bin Select & Clear (Current bin = 1)
Bin Machine Sawline Size Brds Target
1 CNS Left 2T 0 + 4 1.640
2 CNS Right 2T 0 + 0 1.640
3 Edger Any 4W 0 + 0 3.700
4 Gang Any 2T 0 + 4 1.620
5 Resaw ChipTop 2T 0 + 0 1.650
6 VSAE Bottom 2T 0 + 0 1.650
7 VSAE Pos 2 2T 0 + 0 1.650
8 VSAE Pos 3 2T 0 + 0 1.650
9 VSAE Pos 4 2T 0 + 0 1.650
12 Quad Left 2T 0 + 0 1.650
13 Quad Right 2T 0 + 0 1.650
Clear
Cancel
Select

Bin Select & Clear Display

The Bin Select display is used to select a bin for entering measurements and to select a bin for report generation. When you are selecting a bin for measurement entry, all of the defined bins will be displayed. When you are selecting a bin for report generation (from within the Statistical Reports function), only those bins that have measurements for the reports will be displayed.

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The columns that are used in the grid are listed below. Several of the column titles are defined by the Configuration Switches in the LSIZE software on your PC. You cannot change process combination names or specs on the Handheld.

Bin Number If you skipped bin numbers when you set up the bin, those numbers will not be displayed in the list. In the display shown above, bins 10 and 11 are not defined. You can have up to 300 bins. If K/B appears after the bin number, keyboard entry of data is allowed for the bin. The keyboard entry option is specified when you set up the bin specs through LSIZE on the PC.

Machine Center This is an 8 character string defined in the LSIZE software on your PC. The actual title for this column is specified in the Configuration Switches.

Sawline This is an 8 character string defined in the LSIZE software on your PC. The actual title for this column is specified in the Configuration Switches.

Size Code This is an 8 character string defined in the LSIZE software on your PC. The actual title for this column is specified in the Configuration Switches.

Boards The number of boards, panels, parts, etc. in the bin. The actual title for this column is specified in the Configuration Switches. The 2 numbers displayed indicate the number of boards that have been downloaded to LSIZE and the number of boards that have not been downloaded. For example a value of 12 + 5, indicates that there are 17 boards in the bin. 12 of these boards have already been sent to the LSIZE software on your PC and you have 5 new boards that have not been sent to LSIZE. Normally you will let LSIZE Mobile manage the board deletion process.

Target Size This value is defined in the Product Specs dialog in the LSIZE software on your PC.

Lo Spec This value is defined in the Product Specs dialog in the LSIZE software on your PC.

Hi Spec This value is defined in the Product Specs dialog in the LSIZE software on your PC.

You can use the left and right cursor to move between the grid and the buttons at the bottom of the display. Use the up and down cursor to change the bin selection. To exit this display without changing the bin selection, press the Cancel button or the Esc key.

Clear Button

If you entered the Bin Select function from the main screen, you can clear the measurements in the bins. If the clear button is disabled, clearing is not available or you do not have any bins with measurements.

When you enter the Clear display, you will need to enter the range of bins to be cleared. You will be given 2 chances to change your mind about clearing the bins. Once the bins are cleared, the measurements cannot be recovered.

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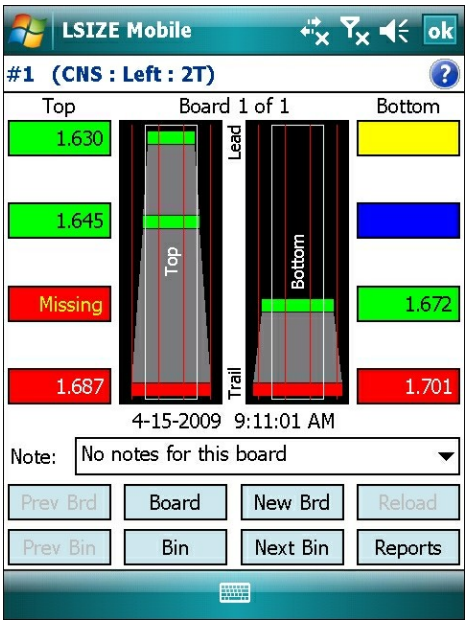
8.5 Measure Boards



Measurement Input Display

Measurements received from the Mobile Module attached to your gage are displayed on the Measurement Input display. You can have as few as 1 measurement/board and up to 8 measurements/edge. You must use the LSIZE software on your PC to set up the parameters used to configure the Measurement Input display for each bin. Several of the text strings on this display are control by the setting in the Configuration Switches. If K/B is shown after the bin number at the top of the display, measurements can be entered via the keyboard for this bin.

As you take measurements on a board, the shape diagram is automatically displayed. If you have not defined specs for a bin, the shape diagram will not be displayed. When you set up your specs in LSIZE on the PC, you really need to have the following specs defined.

Target size

This should be the current target size for the machine. This should not be the number that you hope to get to someday.

Upper and lower spec limits

These spec limits are limits on individual measurements and are used to show the shape charts on the display.

XBar value

This is really the target of the board average and should be the same as the target size.

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XBar control limits

These are the limits on board averages. These values represent the capabilities of the cutting machine and are used in the control charts. See the Statistical Reports in this chapter for more information.

Range target

Like the XBar control limits, the range target is based on what the machine center is capable of doing.

Range upper control limit

This value is based on what the machine center is capable of doing.

When you are learning how to use the Handheld and the Measurement Input display, you should put in sample measurements to help you understand the operation of this display. The Measurement Input display is the most involved display in the LSIZE Mobile software. Take the time to learn its operation so that when you go to the mill to collect real measurements, you really understand the operation of the Measurement Input display.

The first measurement is always placed in the upper left corner of the display. When you take the first measurement on a board, the date and time are also saved. The input measurement pattern is specified for each bin when the specs are set up in the LSIZE software on your PC. You currently have 2 different measurement input patterns that can be used.

End-to-End Take all the measurements along Edge #1 (Top edge in sample display) and then take the measurements along Edge #2 (Bottom edge in sample display). This is the most typical measurement pattern.

Edge-to-Edge Take a measurement on Edge #1 and then Edge #2 at measurement position 1. Move to measurement position 2 and take a measurement on Edge #1 and then Edge #2. Repeat at measurement position 3, 4, etc.

When a measurement is received it is displayed in a measurement cell. In the sample above, there are 8 measurement cells. There are several background colors used for these measurement cells.

Ameasurement cell that has not received any measurement information.

The current measurement cell. The next measurement received will be placed in this cell.

A measurement that falls within the specification limits. This color is also used for measurements if target and/or spec limits are not defined for the bin.

A measurement that falls outside of the spec limits. Missing measurements are also shown with the red background.

If you need to retake a measurement, move the blue input field to the desired measurement cell and retake the measurement. You can move the current measurement cell by using the up and down cursors or by using the touch screen.

If you have entered a measurement in the last measurement cell for a board, and you take

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another measurement, LSIZE Mobile will display a new board and place this new measurement into the first measurement cell. You can also move to a new board by pressing the New Brd button. The New Brd button will only be enabled if there is at least one measurement on the current board . If the current board is not the last board in the bin, the New Brd button is labeled Next Brd.

Board Selection Buttons

You can move between boards in a bin with the following board selection buttons.

- Prev Brd will select the previous board.
- Board will display a list of the boards in the bin and allow you to select or delete boards.
- Next Brd will take you to the next board. The label on this button changes to New Brd if you are on the last board in the bin.

The display below illustrates the display you will see when the Board button is pressed.

Display Shown when Board Button is Selected

You can select a different board by using the up and down cursors or the touch screen. The Status column in the Board Selection display can contain 3 different values.

New This is a board that contains measurements, but has not been sent to the LSIZE software on your PC.

Delete This is a board that is marked as deleted. This board has not been sent to the LSIZE software on your PC. When you download the boards to LSIZE, LSIZE will ignore this board. You can undelete a board prior to sending to LSIZE by pressing the Delete button on the Board Selection display.

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Sent These are boards that have been sent to the LSIZE software on your PC. This group of boards includes boards that were previously labeled as New and Delete.

You can delete and undelete boards by pressing the Delete button. After pressing the Delete button, select the appropriate item and boards.

Bin Selection Buttons

Similar to the Board Selection buttons, the Bin Selection allows you to move from bin to bin. When you set up your bins in the LSIZE software on your PC, you should set the bins up in the order that you will be taking measurements. If you take measurements in bin 1, then bin 2, then bin 3, etc., you can use the Next Bin button to move through the bins.

Reload Button

If you are changing the measurements on a previously measured board, you can revert back to the previous measurement by pressing the Reload button. The Reload button cannot be used on a Saved (board previously sent to LSIZE) board or the current board if this is a new board.

Reports Button

To quickly access the calculated reports for the current bin press the Reports button. Pressing the Reports button takes you to the same place as pressing the Statistical Reports button on the Main Screen.

Board Notes

The board notes are a predefined list of notes that can be attached to a board and sent to the LSIZE software on your PC. The user cannot modify or add notes to the list. If you would like to see additional notes in the list, let MicroRidge Systems know what you would like added. We are looking for mill feedback so that this list can be expanded.

The board notes currently in the list are as follows.

- No notes for this board
- Measured incorrectly
- Wrong M/C, S/L or S/C (Machine center, Sawline or Size code)
- Not a typical board
- Problem with process

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8.6 Statistical Reports

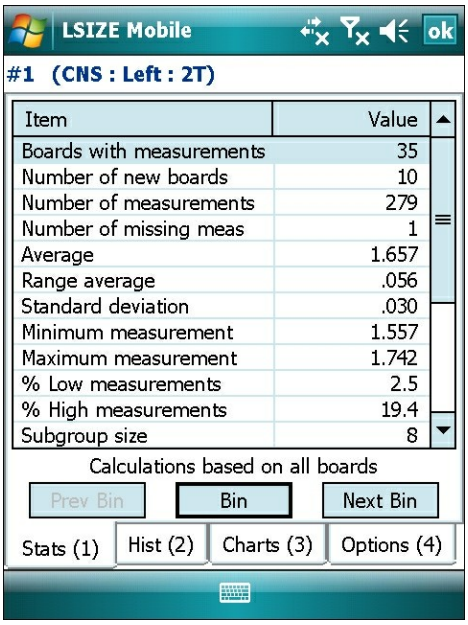
There are 3 statistical reports available in LSIZE Mobile. Along with the reports, the user has some control over the time period used for the reports. These reports can be accessed from the Statistical Reports button on the Main Screen and the Reports button in Measure Boards display.

The reports are displayed in a set of tabbed windows. The windows can be accessed via the touch screen or by pressing the number of the keypad that is displayed on the tab. The tabs available are as follows.

- Calculated statistics and user defined values
- Histogram of measurements
- XBar & R control charts
- Report duration options

Calculated Statistics

The calculated statistics consists of calculations from the bin measurements and bin spec parameters received from the LSIZE software on your PC.



Calculated Statistics Report

The items included in this report are as follows:

- Boards with measurements
- Number of new boards
- Number of measurements

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- Number of missing measurements
- Average
- Range average
- Standard deviation
- Minimum measurement
- Maximum measurement
- % Low measurements
- % High measurements
- Subgroup size (number of measurements/board)
- Target size
- High spec
- Low spec
- XBar (report indicates if this is a user set limit or calculated limit)
- XBar upper control limit (report indicates if this is a user set limit or calculated limit)
- XBar lower control limit (report indicates if this is a user set limit or calculated limit)
- Range target (report indicates if this is a user set limit or calculated limit)
- Range upper control limit (report indicates if this is a user set limit or calculated limit)

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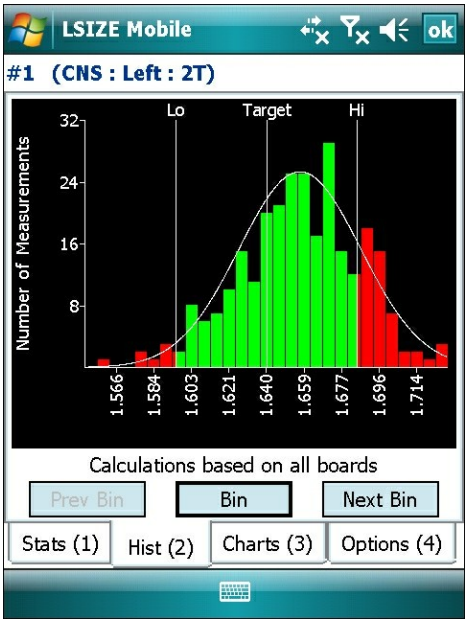
Histogram Report

The histogram report shows the user defined limits (if specified) and the normal curve. The horizontal scale is automatically adjusted to all or most of the data. If your data contains outlier measurements that fall outside the range of the horizontal scale, these outlier measurements are not displayed. The histogram shown below contains 279 measurements from 35 boards. Histograms with just a few measurements may look a little rough. When creating a histogram, the more measurements the better.

Ideally your measurement data would be normally distributed. If the bars in the histogram do not tend to follow the normal curve, you should try to determine why your data does not appear to be normally distributed. Chances are you have factors influencing your process that are causing the measurements to deviate from the normal distribution. These factors could be caused by the machine operator, poor maintenance, etc.



Histogram Report

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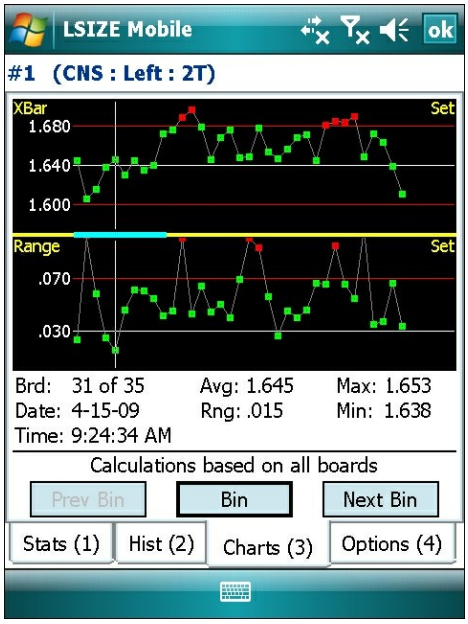
Control Charts Report

The XBar and Range control charts show the average and measurement range for each board used in the calculations. On the sample control charts shown below, you will notice a light blue line between the charts and toward the left edge of the charts. In the chart below, there are 35 boards displayed. 10 of these boards are New and have not been downloaded to the LSIZE software on your PC. These 10 new boards are identified by the light blue line.

Th light blue line is only used when you have used LSIZE on the PC to set up LSIZE Mobile. The light blue line is not used if LSIZE Mobile was set up with Lite Setup.

The vertical white line can be moved from point to point by using the up and down cursor keys or by touching the screen. Data for the point at the white line is displayed below the charts.

If you have not specified control limits for the bin, LSIZE Mobile will calculate control limits. The XBar control limits will be based on 2 x standard deviation. The range control limits are based on the standard SPC table values for range control charts. A label on the right side of the control chart indicates if the control limits are Set or Calculated.



Control Charts Report

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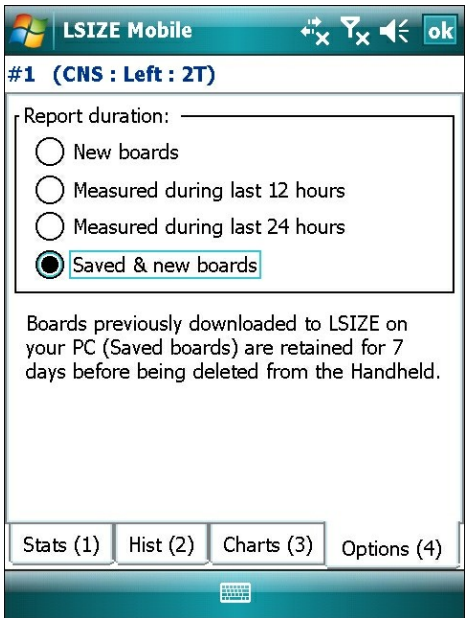
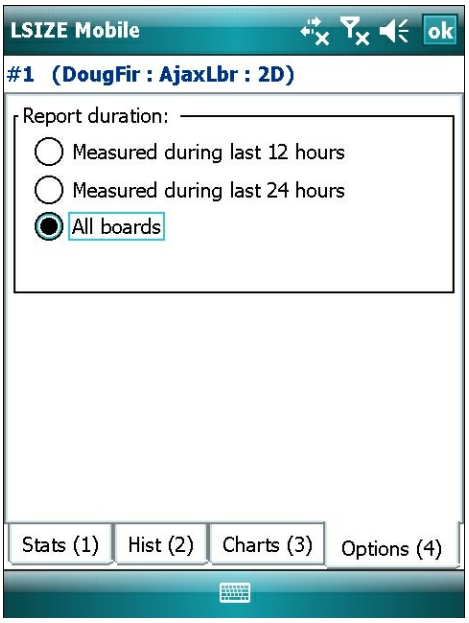
Report Duration Options

The report duration options allow you to specify the time period or group of boards to be included in the reports. When viewing the histogram or calculated statistics reports, you may want to have these reports based on the more recently measured boards. If you have set up LSIZE Wireless with the LSIZE Mobile Lite Setup utility, there is no differentiation between New and Saved boards.

By selecting the New boards, Measured during the last 12 hours or Measured during the last 24 hours, you will only included the more recent boards in the calculations. If you base the reports on the Saved & new boards, the calculated statistics and the shape of the histogram may be influenced by the older boards in the bin. The Save & new boards report duration is useful when you want to get a longer term view of the sizes being generated at a machine center.


LSIZE Mobile
ok
#1 (CNS : Left : 2T)
Report duration:
New boards
Measured during last 12 hours
Measured during last 24 hours
Saved & new boards
Boards previously downloaded to LSIZE on your PC (Saved boards) are retained for 7 days before being deleted from the Handheld.
Stats (1)
Hist (2)
Charts (3)
Options (4)

Report Duration Options When Set Up with LSIZE on the PC



Report duration Options When Set Up with LSIZE Mobile Lite Setup

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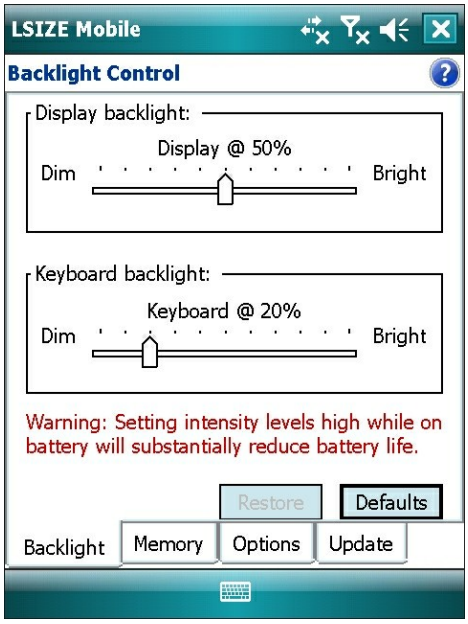
8.7 System Info & Settings

The System Info & Settings function gives you access to backlight control, memory utilization status and local setup options. The settings done through this display are not transferred from LSIZE on the PC and are local to each of your Handhelds.

Backlight Control



Display & Keyboard Backlight Control

This tab gives you convenient access to setting the intensity of the display and keyboard backlights. The backlights can consume a significant power from the battery. Therefore, you should keep these setting to the lowest possible values that still provides adequate intensities.

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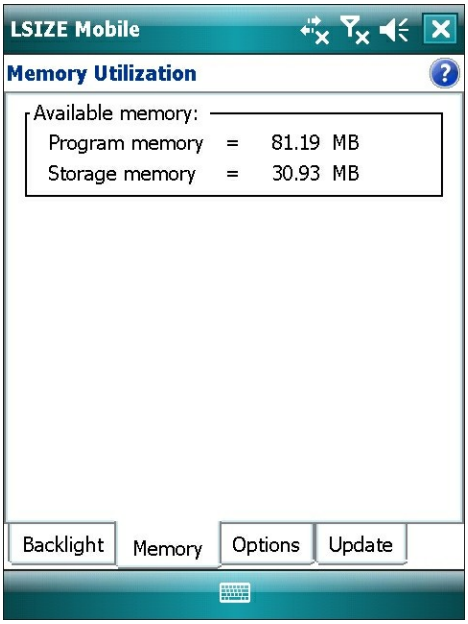
Memory Utilization



Memory Utilization

This display is strictly informational. It is only important if you are using multiple databases with a large number of measurements or you have installed other applications on the Handheld. Remember, MicroRidge does not provide support for other applications that you install on the Handheld.

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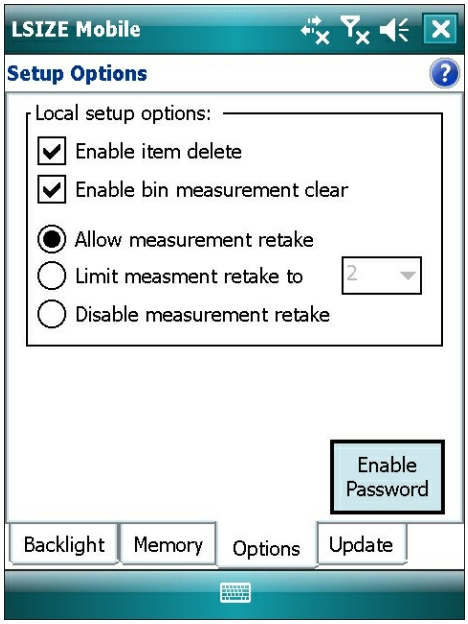
Setup Options



Setup Options Display

The setup options were added to LSIZE Mobile to allow a QC supervisor to limit an individuals ability to change or delete measurement information. We have had several request for this type of functionality in our portable data collectors. The settings you select for these options can be password protected. If you use a password and then forget the password, contact MicroRidge Systems for information on how to reset the password.

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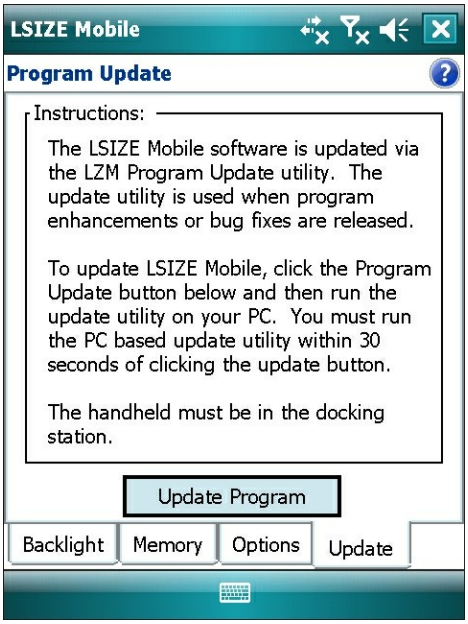
Program Update


LSIZE Mobile
Program Update
Instructions:
The LSIZE Mobile software is updated via the LZM Program Update utility. The update utility is used when program enhancements or bug fixes are released.
To update LSIZE Mobile, click the Program Update button below and then run the update utility on your PC. You must run the PC based update utility within 30 seconds of clicking the update button.
The handheld must be in the docking station.
Update Program
Backlight
Memory
Options
Update

Program Update

The LSIZE Mobile software installed in the Handheld can be update by using the Sync Cable or the regular RS-232 cable. It is much easier to update the software using this display and the RS-232 cable that is used to transfer information to and from the Handheld. Updates for the LSIZE Mobile software will be posted on the web at www.lsize.com/updates.htm. The LSIZE CD also contains the latest LSIZE Mobile software

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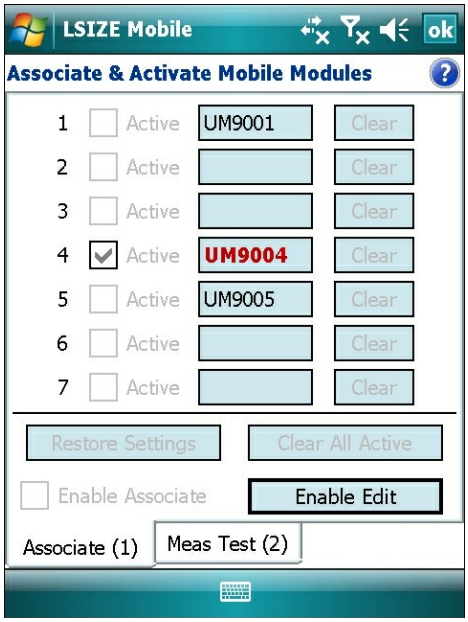
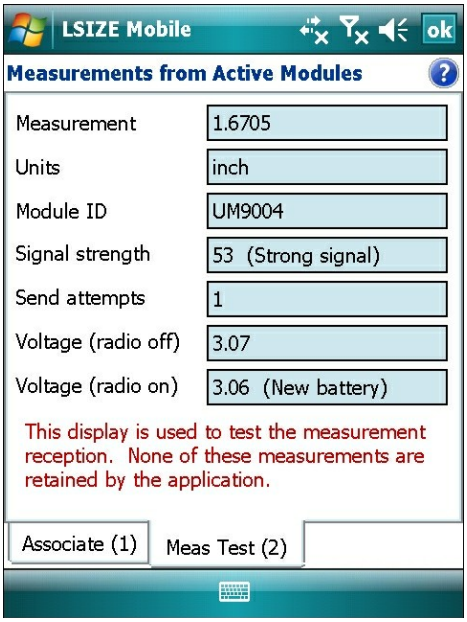
8.8 Associate & Test Module



Module Association Display


LSIZE Mobile
ok
Measurements from Active Modules
Measurement 1.6705
Units inch
Module ID UM9004
Signal strength 53 (Strong signal)
Send attempts 1
Voltage (radio off) 3.07
Voltage (radio on) 3.06 (New battery)
This display is used to test the measurement reception. None of these measurements are retained by the application.
Associate (1)
Meas Test (2)

Measurement Test Display

In order to get gage readings into the Handheld, the Mobile Module connected to the gage must be associated with the Handheld and the Mobile Module must be marked as active. A Mobile Module can only be associated with a single Handheld at a time. When the Mobile Module transmits a measurement packet, this packet will contain address information for a specific Handheld. Other Handhelds may also receive the measurement packet. However, these other Handhelds will not process the packet since the address information in the measurement packet does not match the Handheld address.

You can select the desired tab by touching the screen or pressing 1 or 2 on the keypad. Help information is also available for each of the tabs.

Associate

You can have up to 7 Mobile Modules associated with a Handheld. Depending on the Configuration Switches settings, you can have a single or multiple Mobile Modules active at once. Normally you will only have a single Mobile Module associated with a Handheld. If you are using multiple gages with a Handheld, then you will probably have multiple Mobile Modules associated with that Handheld. The following list of gages illustrates an example of when you may have multiple Mobile Module associated with a single Handheld.

- Most of your measurements are taken on material up to 8" in size. When you take the measurements on this material you use your 8" Mitutoyo caliper. This 8" caliper has a Mobile Module attached to it with the small adhesive pads supplied with the Mobile Module.
- Your mill also produces a small amount of 10" and 12" material. When you measurement this 10" and 12" material you use your 12" Mitutoyo caliper. You do not like to use this

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12" caliper to measure your 4" or 8" material because of the size of the caliper. This 12" caliper has a Mobile Module attached to it with the small adhesive pads supplied with the Mobile Module.

- You use a Mitutoyo digital indicator to measure offset from your double arbor gang. This digital indicator is mounted in a small frame that makes it very easy to measure the offset. This gage also has a Mobile Module attached to the digital indicator frame.

To associate a Mobile Module with a Handheld refer to the Associate with a Handheld section in the Mobile Module chapter. Once a Mobile Module is associated with a Handheld, you should not have to re-associate the Mobile Module with that Handheld. If you do firmware updates to the Mobile Base or the Mobile Module, you will have to re-associate the Mobile Module.

Measurement Test

It is important that you become familiar with the Measurement Test display. After you associate a Mobile Module and make it the active module, you should take a few measurements in the Measurement Test display. The information displayed in the Measurement Test window, is all of the data sent from the Mobile Module. The address information for the Handheld and Mobile Mobile are not shown. The data items displayed are as follows.

Measurement The measurement on the gage.

Units The units on the gage for Mitutoyo gages. If you are not using a Mitutoyo gage, no units will be displayed.

Module ID The Mobile Module ID. This is a unique module identifier and is preset by MicroRidge Systems.

Signal strength Strength of the signal received by the Handheld. These signal strength values will vary from about 45 to just over 100. The lower the number the better. To help you understand this strength value, we have designated 3 strength groups. When using the Handheld in the mill, you should place the Handheld such that the signal strength is strong or moderate.

- **Strong** Strength values less than 75.
- **Moderate** Strength values from 75 to 89.
- **Weak** Strength values 90 and above.

Send attempts The Mobile Module will attempt to send the measurement packet up to 7 times. This number indicates how many attempts it took to get a data valid response from the Handheld.

Voltage (radio off) This is the Mobile Module battery voltage when the radio is turned off.

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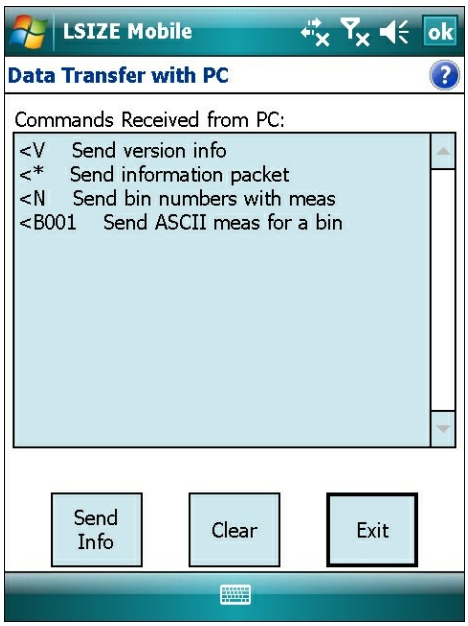
Voltage (radio on) This is the Mobile Module battery voltage when the radio is turned on. Along with the battery voltage, the Measurement Test display will indicate the condition of the battery. The battery in the Mobile Module is a CR2 Photo lithium battery.

New	Battery voltage is 3.00 volts or more
Good	Battery voltage is between 2.80 and 2.99 volts
Low	Battery voltage is between 2.70 and 2.79 volts. The battery should be replaced.
Replace	Battery voltage is less than 2.70 volts. The battery must be replaced as soon as possible.

8.9 Data Transfer



Data Transfer

The Data Transfer display is used to transfer data between the Handheld and your PC. The Data Transfer button on the Main Screen is only enabled when the Handheld is in the Docking Station. The Data Transfer display will show commands received from your PC and for some commands will show progress information while a command is being processed.

All of the data transfer is done via the Docking Station USB/RS-232 Adapter (rectangular connection on back of Docking Station). The ActiveSync cable (square connection on back of Docking Station) is not used with the data transfers performed by the Data Transfer function. The type of data transferred and applications that use the Data Transfer function are listed below.

- Bin specs received from the LSIZE software on your PC.
- Measurements sent to the LSIZE software on your PC.

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- Information sent from and received by ComTestSerial on your PC. ComTestSerial is a serial communications test program that can be used to verify the serial communications with the Handheld and to query the Handheld. The commands that can be used with ComTestSerial are listed later in this section.
- Firmware update utilities for updating the firmware in the Mobile Base board and the Mobile Module.

The "Send Info" button is used for testing the serial communications with your PC. To test the communications with the LSIZE software on your PC, select the *Wireless\Communications test (ComTestSerial)* menu item. Press the "Send Info" button on the Data Transfer display. If you have communications established, you will see information appear in ComTestSerial. If you do not see information appearing in ComTestSerial, you do not have something connected and/or you have selected the wrong serial port on your PC. Check the cable connections as described in the Docking Station section in the LSIZE Handheld chapter. You may also need to try a different serial port in ComTestSerial.

User Commands

The following is a list of commands that you can use to check the communications and status of the Handheld. You should use ComTestSerial to send these commands to the Handheld. There are also additional commands used by the LSIZE software on your PC and commands used by technical support for troubleshooting purposes. You do not need to send a carriage return (Enter key) at the end of the following commands.

<* Send copyright and version information packet to the PC.

<Bnnn Send the board measurement data for bin nnn. To get the measurement data for bin 14, you would send the command <B014.

<N Send bin number with measurements. The first line received is the number of bins with measurements. Each of the following lines contain the following information for a bin.

Bin number

Number of new boards

Number of new boards marked as deleted

Number of saved boards

Number of saved marked as deleted

<V Send the version information string to the PC.

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8.10 About LSIZE Mobile

About LSIZE Mobile

Contact Information

The About LSIZE Mobile function displays version, product and contact information. There are several items shown on the About LSIZE Mobile display that need to be pointed out to you.

Major Version Number

The LSIZE Mobile major version number in the above example is v11. This means that this version of LSIZE Mobile will only work with LSIZE v11 on your PC or LSIZE Mobile Lite Setup v11.

Terminal Serial Number

If you have purchased the 36-Month Handheld Service Agreement for a Handheld, the terminal serial number is used to identify the Handheld covered by the service agreement. The terminal serial number shown in the above example is A203-K004-0153. The dashes shown in this serial number are not actually part of the serial number and are included to make the number easier to read.

Application Serial Number & Registration ID

Each copy of LSIZE Mobile requires a Registration ID. Each Registration ID must be used with a specific Application Serial Number. When you upgrade to a new major version (i.e., Upgrade from LSIZE Mobile 2010 to LSIZE Mobile v11) you will need to provide MicroRidge Systems with the Application Serial Numbers of each Handheld that will be upgraded.

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8.11 Registration Dialog

Registration ID Entry Screen

The Registration ID entry screen will be displayed when you are required to enter a new Registration ID. You should use the stylus to enter the Registration ID via the keyboard displayed in the lower portion of the screen. Normally, the only time you will need to enter a new Registration ID is when you upgrade to a new major version. Remember, a Registration ID can only be used with the specified Application Serial Number

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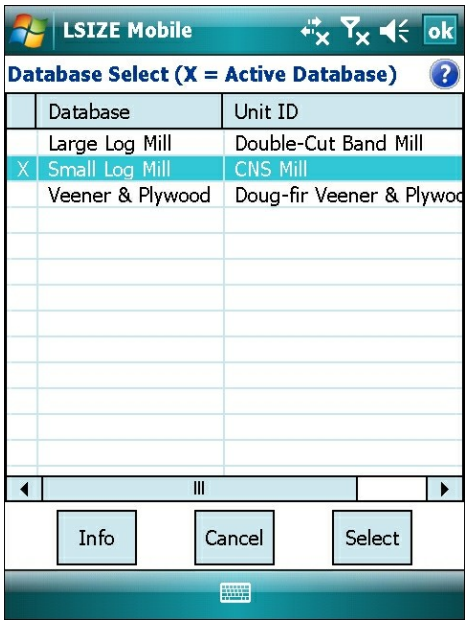
8.12 Select Database

This display is only available when you use LSIZE on the PC to set up LSIZE Mobile. You will not see this display if you set up LSIZE Mobile with the Lite Setup utility.



Select Database Display

This display is used to select the active database when you have multiple databases on the Handheld. To be sure you have selected the correct database, you will be asked to confirm your new selection before leaving this display. The Database name is the LSIZE filename (without the .LSZ extension). The Unit ID is the description associated with the wireless bin spec file on your PC. Both the Database name and Unit ID are displayed on the main LSIZE Mobile screen. You can have up to 10 databases in the Handheld.

To prevent you from transferring measurement to the wrong database in LSIZE on your PC, LSIZE will only accept measurements from the Handheld if the active database name on the Handheld matches the currently open database on LSIZE. If these names do not match, no measurement transfer will occur

When sending bin specs for a database to the Handheld, the current active Handheld database does not have to match the LSIZE database on the PC. The Handheld will automatically store the bin spec information in the appropriate location.

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9 Warranty

The following covers the hardware and software warranty of Products supplied by MicroRidge Systems, Inc.

- MicroRidge warrants that equipment manufactured by MicroRidge to be free from defects in material and workmanship, when properly maintained under normal use, for a period of twelve (12) months from date of purchase of the product (the “warranty period”). Some products sold and distributed by MicroRidge are warranted by the manufacturer of the products.
- Warranty for gage and RS-232 interface cables is 30 days from date of shipment.
- Products which do not confirm to their description or which are defective in material or workmanship will, by MicroRidge decision, be replaced or repaired, or, at MicroRidge’s option, credit for the original purchase price may be allowed provided that customer notifies MicroRidge in writing of such defect within thirty (30) days of discovery and returns such products in accordance with the MicroRidge instructions. No products may be returned without MicroRidge prior written authorization.
- This warranty does not apply to any product which has been subjected to misuse, abuse, negligence or accident by the customer.
- MicroRidge makes no other warranty or representation of any kind with respect to the products, either express or implied, including without limitation, that of merchantability or fitness for a particular use. Failure to make any claim in writing, or within the thirty (30) day period set forth above, shall constitute an irrevocable acceptance of the products and an admission by the customer that the products fully comply with all terms, conditions and specifications of customer’s purchase order. MicroRidge shall not be liable for direct, indirect, incidental, special or consequential damages, under any circumstances, including, but not limited to, damage or loss resulting from inability to use the products, increased operating costs or loss of sales, or any other damages. To make a claim under this warranty, customer must notify MicroRidge in writing within the warranty period.
- Customer will pay all shipping charges (and duty and taxes) for equipment returned to MicroRidge for warranty service. MicroRidge will pay shipping charges for equipment returned to customer in North America. Customers outside the USA are responsible for duty and taxes on equipment returned to them.
- Software developed by MicroRidge is warranted to operate in accordance with the software documentation on the hardware specified in such documentation, for a period of six (6) months from date of shipment. During the warranty period, MicroRidge will at no charge correct any programming error in the software that interferes with normal operation of the software provided that MicroRidge is able to reproduce such error on MicroRidge computer.

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10 Support

Contact SiCam Systems for LSIZE sales & support if you are in any of the following geographic areas:

- Australia
- Canada
- Ireland
- New Zealand
- United States

For all other geographic areas, contact MicroRidge Systems for LSIZE sales & support.

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